

AMAZING

STORIES

MARCH 25¢

Terror Almost
Beyond Imagination!

TITANS' BATTLE
by HEINRICH HAUSER

COMING IN APRIL

These great book-length novels are all scheduled for the April issues of Ziff-Davis fiction magazines. Be sure to reserve your copies now at your dealer. Packed with mystery, adventure, action, and suspense, they are America's greatest reading value—and only 25c each.

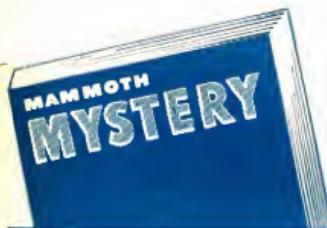


All Aboard for the Moon

By Harold M. Sherman

In a few months both Army and Navy intend to try to reach the moon with a rocket ship. Will they succeed? And what will they find? Here is a story written with cold reality in mind, but with all the red-blooded adventure and excitement of the best in science fiction.

And other complete stories



YOU CAN'T HANG ME!

By Warren Kastel

When Jim Marks did a favor for the woman he loved he didn't realize that he was walking into a trap that he himself had prepared. For at that moment his identity was lost and it was decreed that he should hang for a crime he knew nothing about. A thrilling mystery novel.

And other complete stories



Somebody Wants You Dead

By Robert Moore Williams

Zack Gray had come to this out-of-the-way spot in the mountains to do some trout fishing. Then he blundered into the mystery of the dying girl and the strange key that was his own passport to a hell of violence and sudden death. A book-length detective novel.

And other complete stories



SADDLES WEST!

By H. B. Hickey

It seemed the weight of all the West rode in the saddle with Morgan, and the holsters at his sides weighed heavily in his mind as well as on his belt. But he had to ride it out. A \$2.00 book-length novel.

And other complete stories

—How Do You Know— You Can't Write?



Had Never Written a Line Sells Article Before Completing Course

"Before completing the N.I.A. course, I sold a feature, \$50. Screenland Magazine for \$50. That resulted in an immediate assignment to do another for the same magazine. After gaining confidence with successive feature stories, I am now working into the fiction field. Previous to enrolling in N.I.A., I had never written a line for publication, nor seriously expected to do so." —Gene E. Levant, 116 West Ave. 28, Los Angeles, Cal.



Wins Writing Success after Two Months' Training

"After only two months of N.I.A. training, I became a reporter on the Columbus Enquirer. In four months I have had two raises. Also I have over 75 'by-lines' to my credit, and the prospects of becoming City Editor look very promising." —Marion M. Blodell, Columbus, Georgia.

Have you ever tried?

Have you ever attempted even the least bit of training, under competent guidance?

Or have you been sitting back, as it is so easy to do, waiting for the day to come when you will awaken, all of a sudden, to the discovery "I am a writer"?

If the latter course is the one of your choosing, you probably *never will write*. Lawyers must be law clerks. Doctors must be internes. Engineers must be draftsmen. We all know that, in our time, the egg does come before the chicken.

It is seldom that anyone becomes a writer until he (or she) has been writing for some time. That is why so many authors and writers spring up out of the newspaper business. The day-to-day necessity of writing—or gathering material about which to write—develops their talent, their insight, their background and their confidence as nothing else could.

That is why the Newspaper Institute of America bases its writing instruction on journalism—continuous writing—the training that has produced so many successful authors.

Learn to write by writing

NEWSPAPER Institute training is based on the New York Copy Desk Method. It starts and keeps you writing in your own home, on your own time. Week by week you receive actual assignments, just as if you were right at work on a great metropolitan daily. Your writing is *individually corrected* and constructively criticized. Thoroughly experienced, practical, active writers are responsible for this instruction. Under such sympathetic guidance, you will find that (instead of vainly trying to copy someone else's writing tricks), you are rapidly developing your own distinctive, self-flavored style—undergoing an experience that has a thrill to it, and which at the same time develops in you the power to make your feelings articulate.

Many people who should be writing become awestruck by fabulous stories about millionaire authors and, therefore, give little thought to the \$25, \$50 and \$100 or more that can often be earned for material that takes little time to write—stories, articles on business, hobbies, travel, homemaking, human interest stories, sports, local and club events, etc.—things that can easily be tugged out in leisure hours, and often on the impulse of the moment.

A chance to test yourself

VETERANS

This course approved for Veterans' Training.

Our unique Writing Aptitude Test tells whether you possess the fundamental qualities necessary to successful writing—acute observation, dramatic instinct, creative imagination, etc. You'll enjoy taking this test. The coupon will bring it, without obligation. Newspaper Institute of America, One Park Avenue, New York 16, N. Y. (Founded 1925)

Free

Newspaper Institute of America

One Park Avenue, New York 16, N. Y.

Send me, without cost or obligation, your free Writing Aptitude Test and further information about writing for profit.

Mr. _____

Mrs. _____

Miss _____

Address _____

Check here if you are eligible under the G.I. Bill of Rights.

(All correspondence confidential. No salesman will call on you.) 102-C-367

AMAZING STORIES

Reg. U. S. Pat. Off.

WILLIAM B. ZIFF
Chairman of the Board
and Publisher

B. G. DAVIS
President

Vice Presidents:

GEORGE BERNER
Sales and Advertising Director

MICHAEL H. FROELICH
Editorial Director

H. J. MORGANBOTH
Production Director

H. G. STRONG
Circulation Director

Secretary-Treasurer
A. T. PULLEN

Art Director
HERMAN R. BOLLIN

Editor
RAYMOND A. PALMER

Managing Editor
HOWARD BROWNE

Associate Editors:
WILLIAM L. HAMLING
HENRY A. BOTT

Art Editor
MALCOLM SMITH



MARCH 1947

All Features Complete

THE OBSERVATORY	6
By The Editor.....	
OLD AGE BEGINS AT?	49
By Carter T. Weinwright.....	
THE EXPLOSIVE RAYS	150
By John McCabe Moore.....	
SCIENTIFIC MYSTERIES	152
By L. Taylor Hansen.....	
WHAT MR. GRAHAM MEANS	155
By John McCabe Moore.....	
WHAT MAN CAN IMAGINE	156
By William D. Tyler & John McCabe Moore.....	
TOMORROW'S CHEMICAL GENIUSES	160
By Vincent H. Gaddis.....	
THE GREAT DROUGHT OF 1947	162
By John McCabe Moore.....	
THE BLACK BROTHERHOOD	163
By Alexander Blede.....	
CRITIQUE OF THE SHAVER DISCLOSURE	166
By John McCabe Moore.....	
MONKEYS	168
By Charles Reeves.....	
DIESEL ENGINES	169
By Charles Reeves.....	
DISCUSSIONS	170
By The Readers.....	

Front cover painting by Robert Gibson Jones, illustrating a scene from "Titans' Battle."

Published monthly by ZIFF-DAVIS PUBLISHING COMPANY at 185 North Wabash Ave., Chicago 1, Ill. New York Office, Empire State Building, New York 3, N. Y. Washington office, International Building, 1819 Pennsylvania Avenue, N. W., Washington 25, D. C. Entered as second-class mail April 11, 1946, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879. Subscription \$2.50 for 12 issues; Canada \$5.00; Foreign \$4.50. Subscribers should allow at least two weeks for change of address. All communications about subscriptions should be addressed to the Director of Circulation, Ziff-Davis Publishing Company, 185 North Wabash Ave., Chicago 1, Ill.

VOLUME 21

NUMBER 3

All Stories Complete

JOE DANNON, PIONEER (Novelot—12,500) by Richard S. Shaver 10

Illustrated by Arnold Kohn

The first man to reach other worlds in space became lost—from himself!
What did this weird paradox of loss of identity as an individual mean?

WARLORD OF PEACE (Short—4,500) by Leroy Yerxa 32

Illustrated by Robert Fuqua

War is a terrible thing—and today we say: "We must be ever armed and
powerful; so powerful that no enemy dares attack us." True or false?

CHESS AND DOUBLE CHESS (Short—3,700) by John & Dorothy de Courcy 40

Illustrated by Robert Fuqua

The concept of greater beings than ourselves leads to an interesting
speculation: might it be that these beings play—chess, for instance?

TITANS' BATTLE (Novel—55,000) by Heinrich Hauser 50

Illustrated by Robert Fuqua

What does the future hold for civilization? Is it complete ruin from
atom war? Is it economic chaos? Is it mutation? Or is it insanity?

Copyright 1947, ZIFF-DAVIS PUBLISHING COMPANY
Member of the Audit Bureau of Circulations

We do not accept responsibility for damage or loss of manuscripts or artwork. To facilitate
handling, the author should enclose a self-addressed envelope with the manuscript or artwork attached, and
artists should enclose a self-addressed envelope with their artwork attached, and
artists should enclose a self-addressed envelope with their artwork attached. Accepted material is subject to whatever revision is
necessary to meet requirements. Payment covers all authors', contributors' and contestants' magazine
rights in the U.S.A. and all other countries in the article and/or illustrations and for publicity and
promotion in connection therewith and will be made at our current rates upon acceptance. All photos
and drawings will be considered as part of material purchased. The names of all characters that are
used in short stories, serials and semi-fiction articles that deal with types are fictitious. Use of a name
that is the same as that of any living person is coincidental.

The OBSERVATORY

..... by the Editor

THE September 1946 issue of *Harper's Magazine* carried an article entitled "Little Superman, What Now" authored by William S. Baring-Gould which devoted four columns to lambasting the Shaver Mystery as a "hoax" and as the mouthings of crackpots. Your editor wishes to quote from the November 1946 issue of the same magazine:

To the Editors: (of Harper's)

... Quoting Baring-Gould . . . : "Palmer seems anxious to give the impression that he himself is firmly convinced of the existence of Shaver's *deros*." Baring-Gould does not understand the "Shaver Mystery." From his article, it is apparent at once that he has not read the stories concerned with the "mystery." I am not "anxious to give (an) impression." I believe in the "mystery" for what it is. Every word uttered editorially in *AMAZING STORIES* is my *firm conviction*, not any attempt at a hoax. . . . If he wanted to present my "beliefs" why didn't he ask me what they were?

Rap.

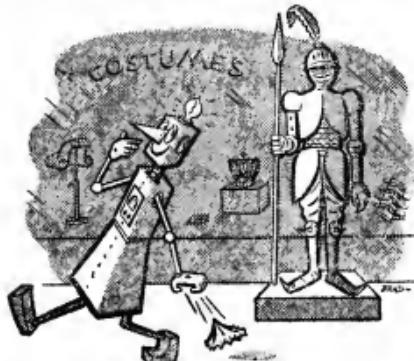
To the Editors:

... I have read not only the Shaver stories but all Mr. Palmer's editorial comments thereon, and I am delighted to learn he is convinced of the truth of the Shaver Mystery and is in no way trying to perpetrate a hoax on his readers. This is very reassuring. . . .

William S. Baring-Gould.

There you are, readers of *AMAZING STORIES*. That should settle the matter. Thank you, Mr. Baring-Gould, for a very fair statement of FACT. The editors of *AMAZING STORIES* are reassured to learn that the Shaver Mystery has been accorded the respect for its honesty that it deserves.

ONE of our readers writes: "What's the matter? You seem to be tapering off with the Shaver Mystery. Can it be that you are not convinced of its truth?" Well, the "tapering off" that has been noticed is not because of any lack of faith, or of material to present—it was (and still is) caused by labor troubles which make it extremely difficult to present things in their proper sequence. Therefore, we have been forced to make up magazines with stories and articles most ready to hand, namely, those reserve articles we always keep ready for emergencies. Thus, even the *Discussions* section has suffered because of sheer inability to get timely or related material into type form. Also, as some of you may have noted, we have resorted to the marvelous ability of Mr. Shaver, who has become known as the new "Merritt" (there was a lot of truth in his stories also) to give our sister magazine, *Mammoth Adventure* some very fine historical novels and novelets, presented as pure fiction, although Mr. Shaver's weird ability to draw on the "thought records" of the caves has enabled him to present startling historical vividness in such stories as "Loot of Babylon" running in the current issue of *Mammoth Adventure*. To those of you who have claimed that Mr. Shaver holds his position solely by the unique nature of his cave stories, we offer his appearances in *Mammoth Adventure* as proof that he is one of the finest writers in America today, and can hold his own against the best, even in the respected field of Adventure. You'd be smart not to miss those stories!



IN THIS issue of *AMAZING STORIES*, we present a new classic by Heinrich Hauser, titled "Titans' Battle." When we presented "Agharti!" we discovered that we had presented one of the fine science fiction novels of all time, even acclaimed by those fans who are prejudiced against your editor because he sponsored and financed several of their

(Continued on page 8)

"THIS WISDOM MUST DIE!"



Truths That Have Been Denied Struggling Humanity

FOR every word that has left the lips of bishops or statesmen to enlighten man, a thousand have been withheld. For every book publicly exposed to the inquiring mind, one hundred more have been suppressed—*damned to oblivion*. Each year of progress has been wilfully delayed centuries. Wisdom has had to filter through biased, secret sessions or ecclesiastical council meetings, where high dignitaries of state and church alone proclaimed what man should know.

Are you prepared to demand the hidden facts of life? Will you continue to believe that you are not capable of weighing the worth of knowledge that concerns your personal freedom and happiness? Realize that much that can make your life more *understandable* and *livable* has been left unexplained or intentionally destroyed. At first by word of mouth only, and now by private discourses, are *revealed* those truths which secret brotherhoods preserved in ancient temples and hidden sanctuaries, from those who sought to selfishly deprive humanity of them.

THIS free BOOK OF EXPLANATION

Let the Rosicrucians, one of these ancient brotherhoods of learning, tell you about these amazing truths, and explain how you, too, like thousands of others, may now use them to enjoy the fullness of life. The Rosicrucians, (not a religious organization) invite you to use the coupon opposite and receive the FREE copy of the fascinating, Sealed Book, with its startling tale of *self help*.

The ROSICRUCIANS (AMORC)

SAN JOSE, CALIFORNIA, U.S.A.



Scribe H. W. T.

THE ROSICRUCIANS (AMORC)
Rosicrucian Park, San Jose, California, U.S.A.

Please send me your FREE Sealed Book. I am sincerely interested in learning how I may receive these long-concealed facts of life.

Name.....

Address.....

The
OBSERVATORY
..... *by the Editor*

(Continued from page 6)

conventions and against the Shaver Mystery because it isn't dogmatic science out of outmoded textbooks! So, now we present a new one we know they'll have to admit is another classic (but they won't now, because like the soreheads they are, they'll slam it now that we mentioned it!). Your editor has a list of these fans (173 of them) and he remembers when a story of his own ran in AMAZING STORIES, ("Black World" by A. R. Steber, a penname) and we received over a hundred letters from persons on the list, praising the story as a classic. Whereupon we revealed to a visiting fan who Steber was, and the following letters immediately claimed it stunk! We have, clipped together, letters from the same persons, dated weeks apart, claiming in the first it was a classic, and in the second that it was drivell! We just mention this to demonstrate to those Shaver fans who have been introduced to the small clubs formed by these readers just how reliable their opinion is. Their little fanmags have, for seven years now, NEVER FAILED to rate your favorite magazine, AMAZING STORIES, as the LAST on the list for the month. How about it, you THINKING readers, and Shaver fans? Going to be "sucked in" by any more fan-sponsored articles like that of Baring-Gould? It doesn't seem reasonable that the fans who claim "Agharti" was a classic could be logical in rating the issue it appeared in as LAST, as USUAL! Nuts to them.



"I'll have a boilermaker."

OUR Shaver story this issue is "Joe Dannon, Pioneer." This one ought to make you think—as it gives some unusual, and logical, ideas about identity and "self." It also continues to give the picture of Space and other planets that is consistent with the whole Shaver Mystery. Perhaps when the Army launches its rocket ship to the Moon, they'll discover that what they are going to need is some new science textbooks to cover "that which can't be true—but is!"

BY THE way, your editor wants to predict that when the first rocket is shot *in the direction* of the Moon, the Army will be very evasive about telling "what happened" and "why." Not for "reasons of security" but simply because they won't know what to say. We, here on Earth, are so cocksure about things being strictly according to our own brand of Hoyle no matter where in the Universe we go, that when something happens that shows us up, we hide behind a board fence until questioners go away. It seems a shame that today we do not teach logic in our schools, but rather teach them dogmatically. We set up a lot of authority, and for the rest of their lives we ask the student to "refer to the authority" if he doesn't know how to do something, or wants to know about anything. Never, never, under any circumstances, think for yourself, we say. Don't question your "betters"; after all, they wrote a book, and you didn't. Science, as far as it goes, is extremely reliable, but it is only a segment of the WHOLE of knowledge, and what is true in one place is not true in another. Big scientists know this, but it's the man on the street, the little Ph.D. out of college with a swelled head, who gets down on his knees and worships a "false god" and gives him attributes even he doesn't claim to have. The tendency to make a priesthood out of scientists is abhorred most by the scientists themselves! They are the first to admit that AMAZING STORIES, because its writers think, and use their imaginations, and scorn the reference books for anything other than a tool rack, is the REAL scientist, the inspiration for the reality to come. All these wonders we have today, you read about in AMAZING STORIES long years ago. It predicts a lot of things that do not come true, BUT, it predicts EVERYTHING that does! And that's THINKING. That's SCIENCE!

THE late Leroy Verxa is still with us, and will be for a long time. His contribution this month is "Warlord of Peace" which offers you something to think about in this race to arm the world with atom bombs. You'll see that the answer to force is never force. We are inclined to sneer at the biblical saying: "The soft answer turneth away wrath," and "He who lives by the sword, dies by the sword," but truer words were never spoken. Let Leroy Verxa repeat them for you in tremendously forceful fashion!

ARATHER hopeless, but interesting because it ISN'T true, picture is painted by John and Dorothy de Courcy in their latest story, "Chess and Double Chess." If this were true, we might just as well bomb ourselves into eternity. However, sometimes the best way to put over a reality, is to present a falsity. Your editor still prefers to believe that we are "masters of our souls, and captains of our destiny." You'll find the story intensely interesting—and to chess fans, it should prove absorbing.

WE THINK we have a great collection of articles in this issue. Not the usual stuff you'll find balancing out the pages of other magazines, but something that is not just "space filling." You readers have told us in no uncertain terms that the articles, factual and controversial, we present are fully as important to you as the stories. We think you'll find that as THINKING individuals, this month's selection will be a veritable banquet feast that you can chew on for days.

A LETTER from Mrs. Rogers informs us that her story and letters in AMAZING STORIES brought her 4,400 letters! Naturally, she was unable to answer them all, but a few who enclosed postage and reply envelope she did answer. The cost of answering would have been a decided hardship, since she is not well-to-do. We mention this to explain to those of our readers who may doubt her existence because of non-answer to their letter, just why they received no answer. Many of our readers have visited her and reported her sincerity, so we KNOW she exists and you can take our word for it.

COMING next month is Harold M. Sherman's "All Aboard for the Moon" with a superb cover by Julian S. Krupa. For those of you who like reality in your stories, and exact science, this one should satisfy you. Also, it presents a very timely subject indeed. We wouldn't be surprised to find that your newspapers were saying much the same thing at the same time: "All aboard for the moon!" Only your editor won't take that first ride, because AMAZING STORIES, more than anyone else, realizes the real difficulties to interplanetary travel. We've predicted it for many years, but it will not be the lead-pipe cinch the rah-rah boys are assuming it will be! Out there in space, maybe even light doesn't travel at the speed of light! Maybe gravity doesn't exist! Maybe "mass" isn't mass at all, and doesn't have the properties that mass has where we've been observing it! Maybe light isn't light, at all! Maybe when we get out of our atmosphere, we won't even see the sun! Because maybe it doesn't even shine! Maybe light is just something moving in our atmosphere BECAUSE of the sun, but not from it! If we remember right, the army went up 14 miles in a balloon once, and they said the sun began to turn blue. Well, if you go far enough into that end



"This is your girl, Walter. Just like I told you—from out of this world."

of the spectrum you get to ultra violet, which you can't see! If the sun IS ultra-violet (or even more ultra) you WON'T SEE IT!

MORE and more of our readers are beginning to "prove" the Shaver Mystery to their OWN satisfaction. Now that we think about it, isn't *proof* a personal matter? Didn't we just say "don't believe it just because it's in a book—the book might be a misprint"? Even the few letters we've printed have presented some baffling things—all obviously sincere. They disagree with the status-quo of the textbooks. That very fact gives you something to think about, and in the thinking, maybe you can find some proof of your own.

THE other day we got a letter from a man who said it was a pleasure to find somebody who knew enough about ancient Chaldean to be able to analyze and discuss its meanings correctly. Well, it will surprise him, and you, to learn that our published remarks about the Chaldean "de" being translated as mist, and our subsequent remarks about it and gravity come solely from USAGE of the Shaver Alphabet! We believe that the alphabet is one of the best proofs of all, and when some semblance of order is gotten out of the mass of material collected on it, the result will be something to make us all think, and will provide us with a tool that will uncover countless mysteries of the past. The "loom" of language today is nothing but a "tangle" and so distorted in meaning that it is a hopeless mess. They say only the "expert" can understand words truly. We say language is not a complicated thing as the books by the experts would have us believe, but a very simple thing consisting of an alphabet which is the key. Twenty-six symbols,

(Concluded on page 31)

A MAN NEVER knows how much of his life is made up of familiar things. Not until he gets into a place where nothing is familiar any more!

To you boiler shop or a steel mill or the Sunday traffic have nothing particularly deadly about them. But place the Hottentot or the Zulu in the steel mill or the traffic. Like a cat caught in the traffic he wouldn't last long.

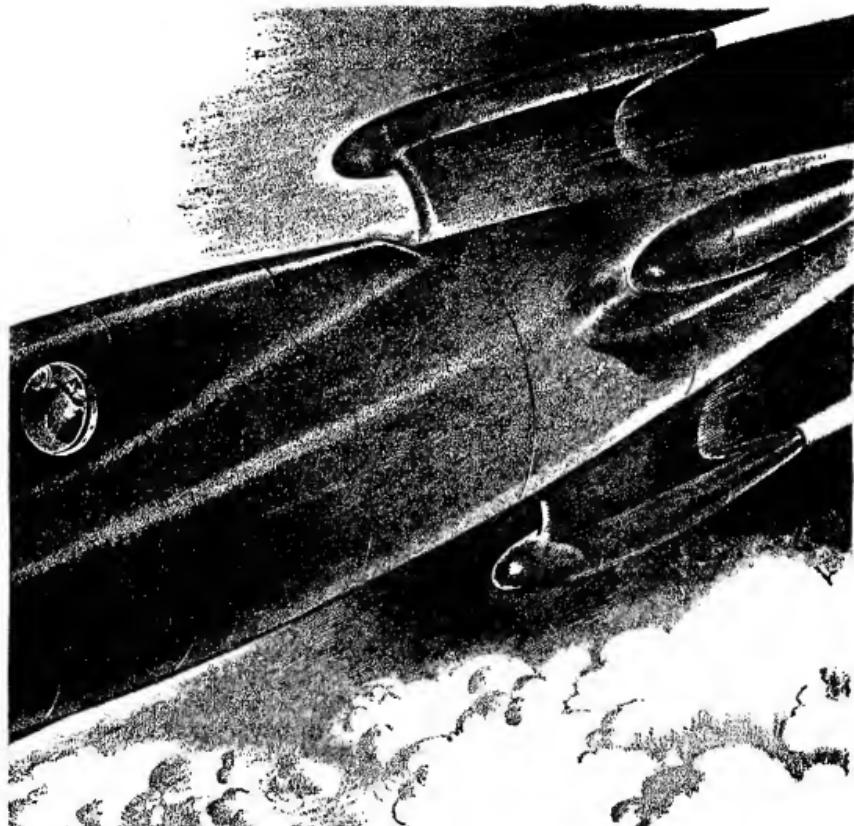
Place yourself in an alien world. A world where duplication takes place strangely, where nothing goes according to the familiar laws of nature you take for granted. Then every little item of your daily life becomes an adventure in deadly danger.

There below something that couldn't be, existed!
Giant worms, fifty miles long—and alligator-beasts almost as huge, battling them

JOE DANNON'S head was buzzing. "Some kind of space sickness, I s'pose." Joe talked to himself—for he was alone in the tiny cabin of the Pioneer. The buzzing got worse as he shut the jets off again.

"There can't be much fuel in the tanks." Joe missed the slosh and rattle of the drifting oil and the feel of its shifting weight. Funny how a guy and a ship get to be part of each other, how much aware of the whole thing he was, after five long years with her alone.





Joe Dannon, Pioneer

by Richard S. Shaver

You're sure you know who "yourself" is?
On this strange world, Joe Dannon found out
his "self" was not always easy to identify!

Funny how a guy could stay alive on nothing, out here where no gravity bore down to wear a man out. By rights he should have died of starvation a couple of months ago. He had cut his rations to a quarter normal since he left Lornomor. Was that two months ago, or was he as nuts as he feared he might be?

Five years! "Geez!" No wonder a guy talked to himself.

Sure, he felt all right, as far as that goes. But, the darn delusions. The visions that plagued him. Like now—those long white arms gesturing to him, calling to him.

Calling him to Earth? Sure that was Earth! It looked like Earth. Just like the globe used to look in the schoolroom — only it didn't have pretty white clouds strung around it, then.

Geez, he was tired. Tired of talking to himself. Tired of everything. Those darn arms.

Soft white arms—his mind couldn't even tell any more whether they were false or true. They were too everlastingly long to be real. They moved and twined like lovely, but deadly snakes. Real arms couldn't do that. Hell . . . no!

A voice now! Dang it! It wasn't his own voice! Somebody else's voice.

Now more of them! Three or four of them. Soft ones, female—cuddly voices, and now a strident, harsh one. And one deep husky voice that called and called. . . .

He couldn't make out the words, but he knew what they were saying. They were saying this:

"You who have been away so long in the blue beyond, where the stars forever blaze out their deadly light into the ever-cold! Out where the stars wait with deadly bright lances to blast the sense out of your head and leave it buzzing as your head is buzzing. Where

the sky is not black nor blue, but so black it is blue. All that is behind! You are home now, Joe. But, you are mad. You're nuts, Joe, nuts!

"Yes, you're nuts, our poor Joe. You've seen too much out there. You're too dumb now from the star rays, you'll never be able to keep your darn mouth shut. You'll talk. And you know what happens to guys that talk about such things as you've seen. They'll call the white-coats, put you in a padded cell. A padded cell, Joe. That's what you'll get for your pioneering.

"Yes, that's what you're landing for, Joe Dannon. Better for you to just keep on going. Out where it's always quiet. Or else just dive head on into Earth—down and down into those mountains that were your home, five long years ago.

"Men don't want you now, you're crazy. The smart aleck medicoes will look so wise when you tell your story. And the old guys who financed the *Pioneer* and were so afraid of ridicule they didn't want publicity till your return—will they be on hand, will they get to hear your story before the smart alecks wrap you up in a strait jacket? Will they defend you when you tell the truth of where you have been for five years? You were supposed to return in months. Maybe the old guys, Prof. Gizide and the rest of them, are dead or gone off somewhere? Anything could go wrong, but damn the worrying. Let the wise medicoes nod their silly heads when you tell your story and lead you away, oh so gently. Old Prof. Gizide will get you out fast enough when he hears about it; he'll prove that you did take off five years ago on an unannounced rocket flight to space. Sure, Joe, don't worry, everything will work out. When you struggle in the nut-house they won't beat you too hard. Just hard enough so you

can't struggle any more, that's all. A hell of a thing to land for, Joe. Better just dive straight down and have it over with quick!"

THE bright day died as he shot around, on around the green cloud-dotted earth and the night rose before him as he plunged into the shadow of earth. The stars sprang out brighter again above him where they had been so long in their cold alien splendor. Fires forever frozen into a pattern of brilliant, blinding diamonds set on the ever-black. And then as swiftly it was day again!

He had shot around the whole earth shadow much too quickly. Joe shook his head, the buzzing quieted. The voices stopped.

Joe glanced at the speed dial, and whistled. At this rate he would have to coast around the old globe for a week.

He would have to ease slowly down into that air or he would burn up like a moth hitting a hot lamp. Maybe he would anyway.

He sure couldn't think like a guy landing a space ship should think. After all, though, he only *had* landed her twice before.

Once on Klakdonothor. What a name for a place! Once on Lornomor. If a guy ever started talking about the things he had seen on just two planets —what there must be to see on the really far-off planets!

In Joe's tired mind were the terrible visions of the life on Klakdonothor, as "they" called it. Where the life is so huge and horrible, so strange that words just haven't been made by men to talk about such things—a guy would have to invent all new words.

But, hell . . . he had films aboard. Somewhere in his junk in the rear of the old tomato can. If the heat hadn't

got into them too bad?

The great worms that lie in the slime and howl like a thousand calliope. Which isn't so odd, the howling—seeing the worms are three and four miles long. Wonder how big a robin would be built to fit those worms?

Klakdónothor was a soft, mushy planet. A lot bigger than Earth. But it couldn't be near as dense for nothing seemed much heavier. It had looked green and so good when it had first loomed up ahead of him.

And then those great things that preyed on the worms had showed up when he had landed! He couldn't even get out to take water aboard, or anything.

Vast alligator-like serpents, squirming through the muck. Squirming quietly, to strike the great worms where they lay asleep. He had thought the worms were hills, or viaducts, or something, at first.

Then they had moved! The terrible, writhing battle that had thrashed the greenery to shreds, to green hash, for fifty miles around the *Pioneer* before he could get her off again, and out of danger.

And that dying worm lying in its deathbed of fifty miles of blood and flesh and hashed jungle, screaming and screaming as it writhed in great snapping coils. Nearly smashed the old tomato can!

Joe thought of "they" who had helped him. "They" who called themselves the "Klakdor," and their planet "Klakdonothor."

Great, floating living palaces "they" built—spun out of their own bodies like great spiders.

Their terrible, yet beautiful thought, so full of perfect, yet somehow such unkind and inhuman voices—such careless, cruel and seemingly perfect logic. So perfectly kind, yet so cruel

in their superiority.

They could not take him seriously enough to be anything but carelessly cruel to his earth mind.

They just couldn't take him seriously, to make him at home or feel that he was safe among friends. To them he was but a midge fly, caught up by the web of circumstance—projected by the unusual inventiveness of his backward race into space. Flung by chance into their aerial web of life on his great tube of soft iron and flaming gas and crude fuel and cumbrous instruments. They had all thought it a most humorous way to travel.

JOE knew why they thought his ship humorous when he saw their own sleek ships of shining plastic speed past him.

He could hear their thought-voices laughing around him as they looked the "quaint" *Pioneer* over. It was then he started calling the *Pioneer*, the life-work of that fine old man Prof. Gizide, the "old tomato can". It was the nearest he could come to translating what they thought about the ship. It was the best he could do in mental defense against their cruel humour—to despise himself and his ship, too.

"Yes, if I talk about the Klakdor I will be labeled crazy. What the hell can I talk about when I land and they want to know what space is like?"

Certainly not the impossible life-forms on and around the dread mushy vastness of Klakdonotho!:

Joe considered the dead world of Lornomor toward which he had fled in his iron "tomato can" to avoid the merciless thought-laughter from the superior race of the Klakdor—as an embarrassed child flees from adult ridicule.

Desperately, suicidally, he had fled toward the dead white planet as it

swung near out of the black night.

He had to do something! He couldn't drink that red stuff, or eat that fried dry hash the Klakdor had brought him. It smelled too much like the great, horrible worms in the swamps below. What else would it be, when they were so big, so numerous? Joe Cannon, drinking worm's blood—only it wouldn't stay down.

Whatever the Klakdor might think of themselves, Joe Cannon would never concede that fried worms and raw worm's blood were Nectar and Ambrosia. They had brought it in response to his mental realization that his stores were nearly gone. It was kind of them—or was it cruel of them? Was it their way of being funny, to bring him revolting, bad-smelling food? Well, he couldn't like them or their food or their life or accept their condescending help.

Joe's head nodded. He fell asleep at the controls, and the *Pioneer* hurled on around the home planet, Earth. Joe dreamed again of the peace he had found on the dead world of Lornomor.

There he had learned so vastly much more from one old man than the so superior minds of the Klakdor had condescended to teach him. You couldn't hate the Klakdor. But you could run away.

The little ship swung on, imperfectly orbited, but still outside the real grip of Earth's gravity. Joe would have to take her lower into the air below to slow her for the long dive. But Joe was tired. Joe slept.

THE voice of old Pood Jaqmul sounded in his sleeping ears dreamily. Pood was the old guy he had found in the deep caves, deep and warm and far down under the eternal ice of the surface. Pood had told him the dead world was called Lornomor, Pood had

told him plenty. But could he repeat any of it?

"Space fears Earth, Joe. Space races near your planet are so weak with their ages of warring on each other So few, with all their ancient space craft and wonder machinery. They fear to let Earthmen learn anything. For the Earth races, once in space—would soon wipe out the horror that is their life.

"That's how I got marooned here. I didn't know . . . It's a long story, Joe. Sit down there on that hunk of silver sculpture. I'll tell you all about it. It takes a long time to tell a greenhorn from Earth about space.

"You think you're a pioneer. That's the name of your ship. But you're not a pioneer, even from among the people of Earth! The only difference is that your race built your ship.

"Space has been traveled regularly since what your race calls early times . . . Even *from* Earth, and *to* Earth.

"The planets of space near Earth are rotten with the thing that makes the space traveling races fear Earth people. It's a long story to get it all through your head. So just relax and I'll tell you why old Pood waits for death here in these caves on Lornomor . . . when he could take off into the far, clean spaces where life is what is should be.

"I'm tired, Joe. Tired, and I'm quitting."

Funny way for a hermit to talk to the first human face he had seen in twenty years or so. But Pood was a lot older than an Earth human, and maybe he had plenty of reason to be tired of living. Pood wasn't an Earth human.

Pood was from another planet, and there were lots of such places, but according to Pood there weren't many humans to be found there. Just cruel,

terrible killers and their cronies and panders and captive women—everything else they had killed.

About Pood and Joe as they talked were the great paintings of the walls of the caverns—those paintings by giants' immortal hands. Paintings such as Michael Angelo's might have been if Mike had studied for a thousand years instead of fifty or forty. If Mike had been an immortal and studied under immortal teachers for a thousand Earth years he might have done something about half that good. If he had seen life and doings such as no mortal man from Earth ever saw.

The vast man-figures and animal-figures were more than superhuman. More perfect than the word "perfect" can convey. The minute detail as fine as a master's engraving ran all through the colossal scenes of Cyclopean life.

OLD Pood, as old men will, forgot he had told Joe to sit down, forgot all about him, apparently. Pood got up and started walking restlessly away, as if he had forgotten something he had to tend to.

Joe got up and followed; he wasn't losing his only human contact since leaving Earth. Joe was tired, but not that tired.

Pood had done it to him again, when he had absent-mindedly led him off into that maze of antique caverns—and Joe had followed in fear of being left alone.

Plunged him into things that filled him with the awful, constant fear of an environment entirely too much for his limited understanding. He was a cat caught in the Sunday traffic again. Just no sense to anything—just stand and face it and wonder what's going to hit you. And knowing it will!

Old Pood had led Joe off into an alien wonder-world. Yes, such a world can have lure . . . The bright lure of ad-

venture, the lure of sex in the strange and fearfully wonderful pictures and statues and thought-records from the bodies and minds of infinitely superior, God-like females. It can have terrific excitement and novelty.

But it also can have in a dreadful measure that fear that paralyzes—that fear like a cat's caught in the traffic, or a city child alone in the woods.

And all excitement and novelty fails to counteract or reduce or hide or help against the terrible fear that comes from a loss of all familiar things around one.

Yes, strong nerves and a healthy body can make a man hard and strong and able to quell such fear and enjoy the terrific novelty of such an alien environment. But Joe was weary, worn out, had been under a terrible stress and necessity of long hours of wakefulness. He was a nervous wreck, but he didn't know it. He found it out the hard way.

You see, the one thing the Klakdor had taught Joe was how to read minds. They had to teach him that to talk to him. It is a little trick of concentration, or else they had treated his mind with a ray from a distance. Joe knew now that the mind hears thought all the time, from other minds; and if you know how, you can read over the memory films of recent awarenesses. You can search till you find certain listening cells in your mind and they will hear the thought and tell you what it is, even after they have heard it. But it is a trick learned by hard effort, not something that happens without willing it to happen.

Pood had told Joe his name by this method, which was the way they did most of their talking.

THE first thing Pood did that threw Joe's nerves out of whack, he

walked up to a vast intricate maze of metal that was meaningless to Joe—and opened a door. Pood walked in, closed the door. A moment later he stuck his head out, looking for Joe, and said: "Come on in; you might as well have some too."

Joe entered, found himself in a metal room about twenty by twenty. On the wall were a dozen peculiar levers. Pood pulled down all twelve of the levers, then touched a great switch on the wall with his finger.

Nothing happened! They walked out.

Then Joe noticed movement to right and left where had been none before.

As he looked that fear started up in his breast, that fear of the unknown!

For right and left of him were twelve other Joe Cannons! And twelve more Poods!

"What happened, Pood? What happened? Who are these guys; reflections? I didn't see any mirrors. I still don't."

"Taint mirrors, Joe. That machine was a duplicator. We have twenty-four duplicates now, and if anything happens to us we won't know the difference!" Pood chuckled. "Hard to believe, ain't it. We'd never know the difference.

"I made a lot of 'em, of me, when I first came here, Joe. But they all died after a while. Got tired of themselves . . . I'm the only one left. And even I don't know whether it's me or a duplicate! Do you know? Can you tell me if I'm me, or a machine product?" Pood chuckled.

Joe was lost. Things are like that in Elder caves. The mind gives up! Such problems conceived for Titan minds by Titan minds just aren't the right size to fit a human head. If he died now he wouldn't know the difference! But then, did one ever know it?

As they went on down the endless, many-branched cavern way, the duplicate pairs each took a separate branch as it opened. But it wasn't possible that the paths they took mattered. Somehow they are just more me, decided Joe. Just more and more Joes and Poods and it doesn't matter if one dies or if they all die or if I should die. They would go on.

But what was the meaning of it? There was something in it he couldn't grasp. Why did Pood do it?

"Because these caverns are dangerous." Pood's mental answer seemed adequate.

"When in danger, you just make a few duplicates and then the loss of one or two won't matter!"

Joe rubbed his head, and that buzzing started. It didn't stop, for a problem was posed he couldn't answer. His head just buzzed on, like the clutch was slipping on an overload.

Joe couldn't think, and musingly he watched, pausing to look at a great depression under a vast metal enigma. Pood grabbed his arm just as he was about to step into the shallow depression to see what it was about.

Pood said, "Now watch those other two on the identical corridor alongside. There is a machine just like this one. Maybe the other Pood hasn't got the proper affection for his friend yet, being so new. Maybe he won't think to stop him. Watch!"

AS JOE stood watching, he could see the other pair dimly. Pood and Joe, going along the companion corridor which paired this one in reverse, like a reflection. An identical depression under an identical machine snared the attention of the duplicate Joe. The repetition of his own thought and act was weird.

The other Joe stepped in, his arm

reached out curiously to touch something. Was it his weight that tripped the power switch of the device, like a platform scale. Or was it his finger that made some obscure contact?

Joe didn't want to find out after it happened.

A blinding flash. A terrible moment of a pulsing, powerful ray from the machine downward. Even here, a hundred yards away, Joe could feel the power of the terrific pressure ray—the sudden relief as the power released again. And in that flash, the other Joe disappeared!

Pood said, "Come on, I'll show you why we need duplicates. This is no place for a fellow who has no experience with it all."

They walked quickly up to where the other Pood stood staring disconsolately at the place where Joe had been.

"Look—" said both Pood's simultaneously, pointing at the floor of the saucer-like depression. There was a faint reddish brown smear all across the solid metal surface. That was Joe!

The titanic pressure of that machine ray had compressed Joe into a thin dense film upon the metal. One duplicate was no more!

They walked on calmly—two Poods and one Joe.

Joe's head buzzed . . .

Now and then through the openings between the titanic metal machines that lined this time-forgotten factory of miracle people Joe could see other pairs of identical Poods and Joes, plodding along. Joe looked tired, and Pood always looked like a cynical, weary and disillusioned old man who had to take care of the children and wasn't very enthusiastic about it.

"Where are we going?" asked Joe, too tired to wonder about it all, but not too tired to worry plenty.

"We're going after certain things

that will do you a lot of good. I don't need them, but you do. Foods, beneficial rays, fluids to drink, medications."

They plodded past a weird edifice, a place large enough to cover several city blocks. It was made of many intricately intertwined planes of curving glass-like stuff that seemed formed for the purpose of losing any wanderer inside. A mirror maze. Maybe it was for amusement. Joe didn't ask; Pood got tired of answering all his questions. Maybe the ancients had a lot of time to spend wandering around such things, wound up in impossible transparent corridors. Or maybe they used some other sense to get around with than plain eyesight.

Stairs, long ramps slanting upward, chambers of odd and weird sights that he could not quite make out in the strange half light of the place. For that matter he hadn't figured out where the light came from, either. But Pood paid no attention. Joe hated to ask questions like a kid. They plodded on.

SUDDENLY inside the maze a light flashed on blindingly bright and Joe heard a "whoooooeeee whoooooooooooooowooo"! Something inside the maze, something that had been speeding out of nowhere, out of space maybe—came suddenly to a stop and for an instant Joe saw many little ugly dwarves inside one of the chambers. They were naked but for g-strings, and their hair was long and matted. They carried short bows and arrows in a quiver over one shoulder. They just didn't make sense here in this place of terrific scientific building, of past titanic workmanship.

Again came that weird "whooooo-eee whooooooo" as of a locomotive rounding the bend of the edge of the world—as of a materializing ghost

train from nowhere—from seventh heaven, maybe.

As Joe watched with startled wide eyes, out of an opening that was not anywhere in the walls but seemed from out of the very nothingness of space itself, out of the air of the center of the great transparent maze shot a long, pearl-grey cylinder the size of a railroad car.

Inside were a dozen gigantic forms, women, they were—and Joe pushed forward to the great glass-like wall to see better. Pushed a couple of other Joes and Poods out of the way, for the awful "whooeewoo" had brought them running.

Gigantic goddesses, fair and beautiful, but alien as time! Their weirdly twisted hair ornaments, breast plates, anklets and arm bands were of some bright metal, like chrome. Everything about them told Joe they weren't of any race he had ever seen.

But then, he had never seen any but Earth men, and the Klakdor, and now Pood, who was hardly human, but seemed so to Joe because Pood was sort of friendly and Joe could understand him. But since he had been with the Klakdor he could understand anybody.

Joe, from having had the same feeling so often lately, realized the dwarves inside the maze were feeling now that fear that he had felt—the fear the cat in traffic must feel. Joe knew that an animal in that position usually got crushed. With those gigantic women bearing down in pursuit from some weird other world on a machine of a kind no dreamer ever dreamed on earth.

The gigantic women blasted at the dwarves with long weapons that twanged like metal bows, like great plucked harps. They shot out a bolt of green fire and the dwarves melted under their accurate fire. But they bent their dwarfish twisted arms and

pulled back their bows and the short clumsy arrows flew back at the giant women.

Joe winced as an arrow pierced a high-breasted beauty. The blood flowed down her white, marble-smooth waist; she clutched at her breast and sank to her knees.

Then that terrific "whooeeeewooo" and the dwarves disappeared, melting into that nothingness on the wings of that titanic railroad into space . . . one of them had known how to set the car into flight again. After them vanished the second car—and the gigantic ultra-beautiful women.

But where they had been, lay several dead dwarves, and beside them the long, slightly gowned figure of a gigantic female.

JOE looked at Pood, a long questioning look, pleading for information. Pood obliged, though still somewhat bored:

"That is a machine. You get in it and it takes you through the 'seven magical stops'. Each stop, when it stops, you can push a button and reach seven other magical stops. Or press another button and come back. Only trouble it is, you never know where you are when you get there—and never *can* remember just how to get back. Or which button to push, anyway. Or whether you have arrived seven hundred years ago or in the future. Or practically anything about it. I was through it when I first came here. I don't know how long ago that was in your time-telling. Those dwarves are natives of one of the worlds the cars stop at, somewhere in space—or whatever it is the cars travel to and on, or in. I suspect the railroad is a space-distortion traveling device that takes people places by some strange distortion of the laws holding things apart

that we call space or distance. Through an ultra-dimension. I don't understand it and I doubt if anyone now living understands it. The dwarves stole that car from the giant women either centuries ago or several planets distance away, I wouldn't know which. They set out on their own to explore the railroad of the seven magical stops. Somewhere along the line they shot a few arrows at the giant women and the women set out in pursuit. The big women might be natives of Lornomor of the past, chasing the dwarves into the future and are going back when they get through. Wish they had killed all those dwarves, and we might have got a chance to talk to them. First people I've seen in half a century I really wanted to talk to. We'd have *some* company if they had stayed here a while."

"*Some* company is right" breathed Joe, thinking of the divine beauty of the huge people. Maybe they were the people who had built these caverns of Lornomor. Or were they? Was Pood always right in his guesses? How much did Pood really know? Who was he anyway?

Well, he had plenty of time to find out. All his life maybe. Then Joe thought of the duplicate Joes walking down those nearly duplicate corridors, saying nearly identical things.

His head started to buzz again. Suppose each of the corridors were an exact duplicate? Suppose each Joe had seen an exact duplication of the scene he had just witnessed and had the same thoughts about it? Suppose some of those scenes had been nearly the same, except that the giantesses had killed all the dwarves and remained on Lornomor? Suppose in the duplicate corridors some of them had come out of the crystal maze and talked to Joe Cannon? He sure would have to ask those

duplicate Joes some questions when he saw them again. But it was so confusing to have identicals.

If he died, there would still be many of him around. Would they be Joe, be him? Or would he be dead, really dead?

SLOWLY Joe realized that he himself was a near duplicate of every other man on earth, except for details . . . length of nose, length and thickness of leg, size of brain, etc. etc. All four-limbed and many of them surprisingly alike. Just like all horses look alike to some people—or all negroes look alike to some people. The truth was all people are brothers of a beginning that was identical somewhere, being one beginning. Yet if he died, he was dead—even though there were plenty of people around very much like him, almost duplicates of him.

They would carry on, say the same things, do the same things, crack the same old jokes over and over. They would marry and raise kids, and lots of the kids of America would look surprisingly like Joe Cannon. What the Heck was "self". He had just seen it duplicated and was no nearer to understanding it, the enigma, than before. Joe guessed shrewdly old Pood had been playing his own special joke, a magical trick upon him with the duplicator. There was no reason to believe that because he had duplicates, he would not be dead if he was killed. There was no reason to change his ideas of identity. Or were there?

Joe's head buzzed. Streets on Earth were nearly duplicates, quite often. The people walking up and down them were nearly duplicates in the main details. But when a man died he was dead and gone. Pood had been kidding him. Just Pood's special joke, to keep him from worrying.

Now from an opening on the far side of the corridor came another Pood and another Joe. As Joe watched they entered another machine like the one they had used to duplicate themselves when Pood and Joe first entered the caverns. Joe stopped to watch, but Pood wasn't interested. A short time passed.

Joe sat down in a blue daze as they came out of the doors. They were still Pood and Joe, but like people seen in a trick mirror at the circus that makes them broad and fat and funny.

Half as high, they were each twice as broad. They walked now with that peculiar short step of the dwarf—were compressed people—some terrible metamorphosis had seized them in the titanic force flows inside the machine and made them short and terrible thick. Joe looked at Pood.

Pood said wearily, "That machine is a thing the ancient race used to make a man heavier, ready for a heavier planet. On heavy planets a man has to be broader, shorter, stronger every way. That machine makes him ready for a trip to the heavy planets. When he comes back, I suppose he gets stretched out again. It is probably adjustable for the various sizes of planets. Joe and Pood don't even know they are different. They won't know till they take a look in a mirror or notice each other. Everything looks bigger, is all."

Joe wondered. Was that duplicate Joe still Joe? Or was he some other person? Was he now no longer Joe Cannon? Joe was tall, the new Joe was short. Joe had a long, lantern-jawed face, the new shorty Joe had now a short square face. Joe's leg was long and graceful, the other Joe had a short heavy leg like a baby elephant. How could he be Joe? But he *had* been Joe? Why wasn't he now? If he, Joe, died, would he be suddenly aware of life

within the fat, short Joe? If all the other Joes died, and he died too—and only that short fat Joe lived—would that be Joe? would that fat Joe be conscious of being short and broad and heavy built?

SLOWLY the realization came to Joe

Cannon that all the people of his race were really one thing—a repetitious repetition of the identical pattern man, and the only difference was that chance shifted the pattern slightly for each one—so they came out different all the time. Environment, feeding, many factors entered into this pattern shifting, but still the thing was the same thing—always—man. One thing, ever dividing and repeating, man—man—man! No more and no less than that.

Gradually Joe realized that "self" and "here" are the same word. Put another Joe over there and it was another self. Repeat it endlessly and you had a race of beings. Self itself was an illusion due to "*here*"dity—"here"—a repetition separated by a space. Connect two identical consciousnesses with wires—wouldn't they be like two batteries hooked together—just twice as much self—but the same?

Hell, take thought itself, it's always the same thing! Just as much the same as two books of mathematics—except some of the books are all blurred and full of misprints—poor thought. When they did it right they were all alike. Everybody had some thought, and they only had thought when they did it right, and when they thought right they were repeating mathematically identical syllogisms. The only reason for the illusion of self was that some people don't know their time tables—hence think they are different—an illusion due to a combination of recurrent error in men.

Some people can do arithmetic, hence get along with each other, since they all think alike, some more and some less—but always agreeing on the answers.

Other guys *couldn't* do arithmetic, *couldn't* think anything out right—hence *thought* they were different.

Joe felt better—the buzzing stopped.

Smart guys are repetitions. Dumb guys are *botched* repetitions. Repetitions of places where thought takes place are minds—selves. Each thought he was unique. But he was only unique when he couldn't think anything out correctly. If he was unique he was terrible dumb. But was a fishworm unique? It was terrible dumb!

Joe's head started buzzing again.

Thought, an exchange of electric flows between little amoeba-like cells in the brain. Why did that make a self? Maybe some people thought of themselves as repetitions of other people and no different really. Real democrats!

Suddenly Joe made up his mind. He was going to get into that crystal door, into that place where the cars from nowhere made the weird noises and vanished into hyperspace—or space-warp or something. He was going to follow the gigantic women into a world more interesting than this one.

Pood agreed. It might be wiser, for a young fellow. Pood had no desire, personally, for any more life of any kind. He was just tired of it all. Old people are that way, Pood assured Joe.

But, Pood argued, "You can't get out again. You can wander in there for years and never get out. This crystal maze is a maze with a purpose. You can't get in *to* the cars. You can't get out *from* the cars. Only the builders, those forgotten people, can tell where the path is through that maze. They built it to protect themselves from ac-

cidental or invasional visitors from the railroad into space."

Joe was obdurate. Pood would not help. Joe tried to open the great door of the crystal maze. It was no go. It would not budge.

FINALLY Joe had an idea. He went back to the machine that had crushed the duplicate Joe. He found a means of swinging the great crushing ray, mounted on great swiveling gimbals, upon the crystalline doorway.

Pood ran off hobbling, he wanted no part of the disaster he expected to happen. Or so he said.

As the huge ray projector swung in response to the strange control, Joe did not even wonder where he had gotten the courage to face the possible death this thing might bring him. Joe was desperate to meet some people. He really wanted some interesting, alive people around him—doing things. This dead world, and the old hermit, Pood, and his answers that only gave him enigmas to puzzle about, were not for him.

Joe pushed the button, the great pressure ray blasted at the vast crystal door.

It gave slowly at first, then crashed into fragments like a breaking dish! Joe did not stop, but blasted steadily at the interior walls of the maze toward the great chamber where the dwarves had appeared so suddenly and so dramatically at war with the giant women.

An hour later the vast power of the ray had crashed a huge broken edged path through the age-brittle stuff of the building. Joe realized vaguely what that building was.

It was a "station" on a railroad that traveled by no means he knew to places no man had ever dreamed of reaching.

Joe found controls in the great crystalline chamber, and pushed them at

random till he heard the "whooooeee-woooo" and the terrible rushing as of winds across the abyss of Hell itself.

Now suddenly materializing out of the nothing of the center of the chamber came the long cylindrical car, like a transparent tank-car with seats—only ten times as long—up close.

Joe climbed in, pressed the studs in the instrument board.

"Whoooooooooooooo!" It began, but it was in his very bones, the wild far breath of space, the cold of the loneliest, deadliest reaches of time, the terrible heat of suns, that irresistible rush of titanic forces through him, around him! Slowly the turmoil stopped—it was quiet.

Joe looked around. Hell, it was the same place! He looked out, where the giant goddess had lain dead, to where he had rammed passage through the crystal walls with the pressuring ray. No great ragged edged path to the outside. No dead goddess.

Yet, it was the same place, to all appearances otherwise. It was a repetition, as all stations are near repetitions of other stations in essentials.

Joe wondered vaguely if somewhere twenty other duplicate Joes had depressed similar buttons, found themselves similarly transported, where? Joe wished he knew.

Joe climbed out, and he knew suddenly he shouldn't have. For the car faded slowly out of sight, the "whooooo-woo" of the space travel came—and Joe was left alone. Not even Pood. The old misanthrope! How could a guy live in wonder till he was tired of wonder? Tired of wonder and magnificence and machines incomprehensible to all but non-existent, long dead superminds. Pood was tired of life.

TIME had passed during that whooshing ride through a kaleidoscope

gone mad. How much time Joe didn't know. More days passed as Joe fumbled through the glass-like shimmering, mirroring maze. Time passed and Joe found the great door. Outside, the familiar machines stood where he had watched with Pood while the giant women fought the fleeing dwarves.

It all looked the same, deserted, blanketed with grey eons of dust. Joe half expected to see Pood walk forward to greet him out of the shadows.

But yet—this was not the same place! Time or space or some vast inexplicable wall of circumstance had arisen between that time and that place where Pood and Joe had stood before the great crystal door. Joe remembered Pood's words—those awed sounding words when he was shaken from his aged complacency by some particularly mighty manifestation of the wisdom of the Elder race.

"The Place of Magic Stops"—that no man ever understood since "they" left. What is it, a railroad into time? A device that bends far separated spaces into simultaneity? No one knows where it goes, one only knows one is somewhere else when it stops.

"I am taking a ride!" Joe had said, and Pood had not been able to dissuade him. Anywhere was better than the dead world of Lornomor.

Now Joe remembered. This was a different place, maybe even a different time. The great jagged hole he had blasted through the glassy walls was not here.

Joe wandered down the so familiar corridors, past the place where the duplicator cabinets stood, row on row. Joe wondered just how long it would take that thing to create an army of Joes? No, thanks—he would remain one Joe—himself. It was too confusing to see yourself repeated like that.

Joe came out to the place where the

wrecked space ship had lain on Lornomor. At least that was different. The wreck of the *Pioneer* was not here, nor the wreck of the strange, powerful ship which Pood had been wrecked in on Lornomor so long ago. This duplication of things along the weird railroad through dimensions did not include everything.

Pood had shown Joe how to use the vision rays that stood about the caverns of Lornomor. On Lornomor there had been little to look at with the immense range and magnification of the beam that shot from the machine. Lornomor was dead and frozen. Nothing to see but vast ice choked chasms, some strange storm of force and cold had torn and crushed the surface and left it dead forever. Only the caverns were warm and livable.

Joe swung the great ray up and up. The ray made the rock overhead vanish, along the length of the ray was only the white light and nothing at all except the point of focus. There one could see rock, and more rock as Joe spun the focus dial that extended the focus ever farther away, farther up.

SUDDENLY the ray penetrated Earth's crust, and bright sunlight flooded the tube of sight, splashed and glinted everywhere about Joe from the suddenly blinding screen. Right into the eye of the rising sun he had inadvertently caused the ray to emerge on the surface.

Slowly Joe's eyes adjusted to the brightness and he saw on the screen a long valley of trees, a green wavy fields of young grain, a tractor chugging, farmhouses. It sure looked like Earth!

Nothing alien about the surface of this world. Joe swung the ray closer to the tractor, and spoke into the screen absently:

"Wonder if he speaks English?"

The farmer looked up, shut off the tractor, got off and walked around the machine. His red, stubbled face wet with sweat—he looked more than puzzled.

"Now who in hell did I hear, out here, and with the motor going, too? I sure am tired . . . Beginning to hear things I shouldn't!"

Joe's question was answered and he had learned that the rays carried his voice. This was Earth! This cavern was some long buried part of the rocks of Mother Earth.

Joe swung the ray wonderingly across the hills, across a mountain, and then the blue seas sparkled, little racing white caps hurrying across the bright blue. A white sail in the distance, Joe wondered. And as he wondered, the strange mystifying answer came.

Far, far overhead, a high shrill screaming began. Faint at first, it grew louder, and Joe spun the focus distance dial, reaching up and up toward the sound with the mighty ancient ray.

At last he reached it, that red hot falling cylinder of steel, watched it plunge down and down, thrilled and feared with the man inside as the nose rockets flared briefly, checking the terrible fall again and again.

Close to the water the jets stopped, the steel flung itself with a great hiss into the blue. Down and down and down into the dark water, would it ever stop its dive and come up?

Joe suffered for the unconscious man inside as the pressure near crushed him, hoped for him that he was not dead as the last terrible momentum was consumed by the cushioning water's depths, as the cylinder again shot up toward the shining, blue, wave-capped surface.

At last he regained consciousness, shoved open the tiny round lock door —crawled out with his rubber boat as the cylinder filled with water and sank under his feet.

Joe felt a weird awe as he looked at the face of that weary, sick, starved man asleep now in his rubber boat. FOR THE MAN'S FACE WAS HIS OWN!

One of his duplicates? Joe didn't know if that man up there was Joe or this one here was the original Joe Cannon. They both were Joe Cannon was the incomprehensible truth. One of them had come to earth via the strange railroad of the ancients—the space-warp railroad.

The other, equipped with the same memory and mind, had returned to his rocket ship, found fuel somewhere, refueled—returned the way he had come—the hard way. Both of them were now on Earth!

AS JOE watched with his long range ray, watched that lonely rubber boat on the choppy, bright sea up there, he knew vaguely—could almost hear and feel those twenty some other Joes back in the caverns of Lornomor. Those caverns that were nearly duplicates of these he had suddenly found himself within here on Earth.

He knew those Joes were walking and talking with each of the score or more Pood Jaqmuls, and Pood was explaining as they passed the enormous explosion cavities where some cavern war had blasted the superhuman elegance of the ancient art work into great horrible gaps in the endless beauty. Ripped cables projected from the walls in the ruins, cables hung with fine festoonings of grey dust which covered everything there that wasn't directly vertical. And Joe wondered how many of those other Joe's eyes were drawn

again and again to the Titan women in the wall paintings and bas-reliefs and sculptured columns.

Those women were too sensuously developed for mortal man to look on with comfort or understanding or anything but a terrible inward pain of longing—a fearful knowledge of one's own inadequacy. A knowing that being only mortal one could never approach such a being with the love the pictured forms aroused so terribly and insatiably within one—nor even dream of being able to please such a Titanic female or be worthy of her slightest attention.

And Joe hoped the love those pictured, long-gone females had aroused in him—that burned with an unquenched flame—did not torment all those other Joes so painfully. Joe could hear those other Joes in his "imagination" (or was it his perception) asking Pood, all those Joes asking all those Poods:

"Do such beings as these gigantic, infinitely beautiful superwomen exist anywhere today? They seem so terribly unattainable in their wisdom and beauty—they are what I would call 'Goddesses' because I had no word mighty enough to fit them."

"They are the 'Elder' race," he could hear Pood answer. "Their vast system of cold worlds came into a place in space where they had to abandon all these cavern homes—and that men like ourselves have come to live in and on these worlds afterward. Some little of their science my race has learned from their writings and their machines. Every great advance our race has made was through the study of the ancient methods. That is what I want to teach you—that the quest may go on."

Pood picked up a book where it lay half hidden in the dust under a machine. He dusted off the metal foil

cover—read aloud the title: "Tentyne"

"Here is an engineering handbook of theirs left here by one of the by-gone workmen. If you could read the knowledge in the symbols, could understand the formulae in this book, you would possess the key to immortality itself. The word means 'Textbook of Beneficial Ray Mech Repair'—as the beginning text explains—and would set your race upon the path to greatness . . ."

Joe heard the others say, "Pood, why don't you and I get in my ship and find your people—leave this dead world and go where your race can give me what you say you wish to teach me, quickly? Why do we dawdle about here as if there were nothing to do?"

"Several reasons. One reason is it'll take a year or two to teach you even a beginning of what I want to give men before I die. Then there is the reason that one of the Joes already found fuel in the old wreck of my own ship, filled his tanks, and blasted off for earth. His Pood Jaqmul didn't feel like going, making the trip in that coffee grinder worried him, I guess. Another reason, I was in that space-warp machine for so long that all my friends, my home, are lost in the past somewhere. If I do go back, it will be hard to face it—all strange and different. And another reason is that if we want to travel, it's easier to do it via the space-warp railroad than by any other way even if time often gets crossed up enroute."

"I am used to this solitude. Joe, when I have given you plans of space ships like that wrecked one, I will take you to your Earth by means of that ancient space-warp device. Then your race can seek out their own paths to the future. I would rather stay here on this dead world and dream under these painted goddesses than to seek more discouragement and experience

more futile seeking after impossible things. Maybe when I die something that is still 'me' will find its way to the feet of such God-like beings as are here pictured. I don't believe it—but I like to dream about it."

THE voices died out of the ears of the Joe Cannon on Earth—in the forgotten, unknown caverns under Earth's rocky crust. His eyes followed the rubber boat pictured on his view-screen, rocking on the now quiet sea overhead. The man in the boat was mentally resolving not to mention a word about who he was or where he had been, till he had found old Prof. Gizide who had built the rocket ship, partially financed the whole expedition—which had been entirely under cover for fear of government interference.

The Joe in the depths resolved to help him with these far reaching rays, for he wanted to bring the news of the ship's successful voyage to the old Prof. himself, too.

JOE sat in the rubber boat, and the sun beat down. His water was gone. He fished, but they weren't biting.

Joe muttered to himself.

"How the hell could you tell 'em that space gravity didn't act like school-book gravity? How could he tell old Gizide how he came to miss Mars and go off into far space and not even know where he had been, or have any proper charts of his course? Once out of the air, gravity had quit too, and the drive of the rockets had shot the *Pioneer* along like a crazy thing. Mars just didn't have a chance to be where it was supposed to be when the *Pioneer* arrived. It didn't have time, for the *Pioneer* covered the space in a third the allotted time, and there was no way to cut the momentum—for when he slot off the forward braking charges

the *Pioneer* just started off as fast in the opposite direction. No weight! see, Prof! Nothing acts like it should without weight. Momentum don't give any weight, nor act like weight, it has no weight at all to have a velocity! It just isn't like the school books at all. Of course he missed Mars. Nobody could have hit it!

"And space is a long and deep and wide place to get lost in, Prof!" He had shut off the rockets, saved his fuel. "I didn't waste any fuel trying to catch Mars a second time. I just sat tight knowing my only chance for life lay in approaching some planet under this acquired momentum."

Joe came out of it, stared at the sun glittered water—rubbed his head to stop the buzzing. There was no Prof. Gizide to talk to. Might as well save the explanations. Of course he should have turned her right around as agreed on and landed on Earth. But how could he tell them the terrible lure the space ahead had, how impossible it was to turn around and go back to prosaic old New York, with all space ahead beckoning. Death, what was death?

If you could spend all eternity just speeding along toward some wonderful destination that wasn't just another hot-dog stand along the road. He had followed the lure of the open road long enough to know it was always another drive-in, just like all the others—another lousy restaurant that wasn't interested in giving anyone anything really fit to eat.

Nothing like that, even remotely like that could happen up here. How could anyone foresee the strain of the takeoff would unbalance him—make him unable to turn back from the lure of the far places. Well, he was back, and would tell them what he pleased. Only a series of miracles had brought him back, but the trail was blazed! Space

was conquered, and his records—

Geez—his records. . . .

They had gone down with the *Pioneer* back there in the Atlantic!

WHEN they picked him up, Joe was raving. Thirst and heat and the long strain had got him. So Joe became Joe again long after, and he was in that place where people go when picked up in the condition he was in, raving of giant worms, and mile-long alligators. The psychopathic ward of a big New York Hospital. He knew what those arms reaching out to him when he neared Earth had meant "Keep your big mouth shut."

He did, after he came to himself. Joe acted sane. And Joe got out, after a long time.

The day came when he walked up the red brick walk to the door of Prof. Gizide's home. He knocked.

There was no answer. He knocked harder. Nobody came.

Joe went on out behind the house to the little lab where the Prof worked when he couldn't get out to the big lab outside the city. Nobody here. Joe took a cab out to the city limits and the experimental lab of the Prof and his associates.

He walked up to the big brass studded doors.

The bright young girl behind the desk asked him his name and business.

"Joe Cannon. Used to work here for Prof. Gizide. I've been away for five years.

"The former owners of this place had some financial trouble or something. This is now the home of Prettykeen Hosiery Co. Were you looking for work?"

"No, I guess I've got a job. I guess I do!"

Joe went out.

"Prettykeen Hosiery, eh!" That was

pretty keen all right. The "Pioneer Rocket, Inc." had folded when he hadn't returned. He would have to find the old boys, and would they be glad to see him!

SEVERAL days later, Joe walked up the shabby street. He had a card in his hand. He studied the card, watched the numbers on the old houses. This tumbledown rooming house, this must be the one.

Joe rang the bell. A lack of noise told him the bell didn't work. He knocked.

After a long time someone fumbled the door open. She was fat and dirty and foreign.

He asked for Prof. Gizide. She made him repeat it, acted as if he was a bill collector, as if she never heard the name before.

Finally she led him up the stairs, giving him to understand she was honoring him unduly by her efforts.

Three long flights of worn out carpet. Dusty, spotted, smelly.

She knocked on a door. A noise inside. She went back down the stairs. The door opened.

An old white haired man peered out at Joe. The beaten hopeless look on that face . . . Joe's heart contracted with pity, a spasm of contrition.

He cursed the indecision, the madness that had contributed to his missing the planned route of the trip, missing Mars entirely.

But the vast joy that suddenly spread over the old man's face banished the pain from Joe's breast, aroused an answering joy in his own heart.

Silently the two men embraced. The old man sobbed, tears of joy and relief streamed down his face. Joe's face was wet, too.

"Joe, my Joe Cannon! My star-voyager! My space-conqueror! My

brave man who did not scoff at the old men's dreams. Ah, Joe, now I can die happy. I have seen your face again! Now, come in, man, and talk! Tell me every little thing from the beginning."

Joe entered the shabby little room. He sat down on the rickety chair with the spring showing. He put his hat on the floor. He started to talk, and the old man paced up and down, finally sank into the only other chair in the room. His old face shone, his hands were clasped as in prayer.

But Joe knew that the prayer was to him, was asking him not to stop, not to miss one slight detail of that trip to space. That trip the old man could not make himself after a lifetime of striving toward it.

Joe talked! Joe tried! The words tumbled from his mouth in a steady stream—of the wonder of Klakdor and Klakdonothor, of the terror and size of Klakdonothor below the Klakdor web cities floating forever in the outer air. Of his embarrassment at their ridicule—at their attitude. Of his flight to the next planet, the dead world of Lornomor. Of the old hermit who had sat for an age—sat forever in the Elder caverns waiting for a rescue he did not want. Of his refusing Joe's offer to take him along because of knowing that Joe was not rescue but only poverty meeting poverty. For the old man's race were people who lived for a thousand years of joyful and fecund life, then died by their own hand rather than face age.

Prof. Gizide nodded understandingly. Every word he drank in, nodding understanding all the time. And as Joe finished, as the last words describing his search left his lips—Prof. Gizide toppled from his chair to the floor.

As he fell, his head struck the metal of the gas heater! The blood started

from a wound in his head.

JOE picked the old man up, laid him on the bed—got water, bathed his face. But the faltering breath grew weaker.

As Joe looked for something, whistle, anything—he found the reason.

In the cupboard was no food—one crust of moldy bread, half eaten.

Prof. Gizide was nearly dead of starvation. Joy had completed the work of hunger.

The police were not helpful. They accused Joe of killing Prof. Gizide by a blow on the head. They wanted to know where Joe had hidden the money. Old Gizide was known as a miser. He never even spent money for food! Starved himself, to save money.

"He must have a lot of it somewhere, he never spent any."

Joe was discouraged. Joe refused to talk. Joe went to jail. Murder. Joe sat in jail, wondering how to tell the truth. That truth that nobody ever believes anyway—and least of all the truth he had to tell.

Joe told the truth! The whitecoats took Joe away, after his "appointed" counsel pled "insanity".

Joe sat in Bellevue.

Joe was a good, quiet patient. Soon he was taken for a walk, in a long line of "nuts".

It was spring again. Joe wished he was somewhere else.

Suddenly a strange, alarming pressure sprang into being about him. Joe felt light—lighter. Coruscations of weird, alien energy rainbowed around him. Slowly, at first, he floated up!

The attendant, mouth agape, instinctively reached for Joe's feet. Too late.

Up—up, faster and faster. Strange winds beat upon him, he was traveling now, like a bird, straight across country.

The attendant was afraid to tell what happened. He said Joe had leaped the fence—ran like a deer. The other nuts said little, they knew they would not be believed. The craziest ones talked about it, but nobody listened. Such things only happen in Fortean data, or in fairy tales. Few other people have the guts to admit it, even when they see such things happen. Not when they are as close to a bughouse and a straight jacket as the attendant. He knew better.

JOE came down, floating down to earth a good way from New York. The strange powerful rainbow sphere of energy ceased to beat about him with its invisible wings. His feet sank into the moist earth. The trees about him on the hillside sparkled with the sun and singing birds did their duty to make his freedom look of value. As he glanced about him—through the sun-shot air came two figures.

Joe remembered. There were other Joes, his fellows—duplicates. Remembering, he shook hands, fell into step beside them. They entered a big, freshly gouged out opening in the green hillside—travelled a long way down and into the hill.

THE original Joe rose from the ancient penetro-levitator beam mech, shut off the throbbing power. The mottled old rollat swept up, stopped, its ancient motor humming as sweetly as ever.

Three Joes got out. They did not have to talk much. Their memories were nearly identical.

LATER, as four Joes blasted a passage through the crystal maze with pressure beams. That "whoooooeeeewooooo" that presaged the approach of the space-warp car came, weirdly

howled closer, closer—materialized suddenly out of nothingness in the center of the maze.

As their pressure rays burst down the last crystal barrier, a score of little, indescribably twisted and dirty men and women rose up into sight from the floor of the car. They let fly with twenty of those short, heavy arrows. Four Joes died.

There were no more Joes in the God-caverns of earth now. The secret was still the ancient secret.

The dwarves crept silently from the smashed maze, searched the surface above with penetrays till the new, raw opening was found. Swiftly the pressure rays beat upon the soft earth, obliterated the passage from the surface to the ancient Elder World caverns. Then the troop of little men went to bed in the stim rays, and lay all night in the pleasures built for a God's nuptials so long ago. No big sunburned people would ever take their stim from them, the caverns belong to the dwarves!

ON LORNOMOR, which was perhaps Earth far in the future—or not earth at all, but another place in space too far away to think about—Old Pood sat on a rock by his wrecked ship, where he had sat for twenty years—or was it two hundred? Thinking was a job, but Pood was doing some. Near him lay the last but one of the Joes, gasping for breath. Pood gave him water, pulled the ragged cover about his shoulders.

He couldn't last long. Lornomor wasn't exactly healthy. Everybody always died here but Pood. That's why Pood liked it. It was good and quiet. The crazy dwarves never stopped here, in their rounds of the abandoned worlds which was their domain. Unless they were chasing some-

one. Pood dozed. Joe stopped breathing.

IN ANOTHER cavern corridor, a duplicate Pood pulled a dying duplicate Joe into the duplicator cabinet. In seconds there were two dozen healthy Joes—and one sick, dying Joe.

Some months later twenty-four Joes stood beside a repaired space ship. Old Pood nodded happily.

"She'll travel now, boys". Pood was happy to see the old wreck in which he had crashed on Lornomor so long ago back together again and ready to take off.

JOE CANNON'S head was buzzing. Behind him in the capacious space ship of Pood's, twenty-two other Joe Cannons played pinochle, or snored in the bunks. Pood had kept one Joe Cannon on Lornomor.

"Got a special use for this guy—he'll stay there. You'll see him later."

Joe Cannon, at the controls of the strange ship built by Pood Jaqmul's mysterious race, felt almost all right—except for the darn delusions. The visions that plagued him.

Like now, those arms gesturing, those voices calling to him. To Earth. Sure it was Earth. It looked like Earth, didn't it?

Those darn soft white arms too everlastingly long to be real. They twined like snakes, stretched like rubber. And the voices chorusing:

"You're nuts, Joe. How'll you ever tell 'em? About the Klakdor and the giant worms on Klakdonothor? Or about the other Joes."

Nobody would ever believe there was more than one Joe.

Joe Cannon looked around from the controls at the twenty-two other Joe Cannons lounging around the ship, crowding it to capacity. He sighed hap-

pily. They'd believe Joe Cannon this time, if they hadn't believed that poor original Joe Cannon. Or was he the original? Well, it didn't matter.

The ship began its long screaming dive into the air of the Earth. The walls heated, the air grew stuffy, the weight of a guy's arms grew most too heavy to hang on to the jet lever. Joe juiced the forward jets, the weight grew worse for an instant. Joe eased off, keeping it just bearable, reducing speed steadily.

But, Hell, come right down to it, plenty of those other guys were essentially the same, down there on that green ball, with the pretty white clouds dotting it like sheep on a meadow. Just *more* Joes, *more* flesh, *more* of the same kind of good intent, good hard thinking, clean-living Joe Cannons. Good guys, lots of them—and really all the same thing—*flesh*—figuring how to live better and longer. He'd try to tell them, all right! Show 'em this ship, give 'em the plans Pood had sent along in the ship's strong box.

FAR below the twenty-three Joes, another Joe worked madly at a huge space-televisor. He swung the levitator beam up, up, along the view beam, watching to get it just right—to ease that ship down without accident. There were going to be no more dead Joes if he could help it. Behind him Pood watched proudly, helping him with a word now and then—Pood knew how to teach by letting a man do things—important things. The falling ship hovered in the cross-hairs of the beam, the levitator lightened it—the ship fell now softly as a feather in the breezeless air.

Around Joe at the televisor and levitator the enigmatic gloom of the forgotten caverns, the mighty pictured lure of the Goddess-women reminding him what the future could be for men

who conquered age as they had, long ago.

Pood slipped away from the seated Joe quietly. The "whoooooeeeewoooooo" of the mysterious railroad of the Seven Planes startled Joe, made him look around—miss Pood's wise, weary, good-natured face.

IN SIDE the long cylinder of the car on the whirling kaleidoscope of force to Lornomor—Pood chuckled to himself.

The dwarves *would* balk old Pood would they! The Earth people were good folk. They'd learn about the caves, learn plenty. To Heck with the dwarves, or anybody else wanted to balk the surface folk of that Earth planet. The dwarves were crazy nomads anyway. Pood was no beginner. They'd learn, darn 'em. They'd learn to leave Pood alone. And if they got these Joes—there was still another Joe back on Lornomor, in a sleep chamber . . . Pood chuckled. The big car "whooooeeeewooooed" to a stop on Lornomor.

LATTERWORD

THIS STORY WASN'T supposed to be anything more than this: In the caves they talk of this "railroad." The road of the "seven magic stops." It is very much as described, except it is

more complicated, and goes places nobody understands even how to get back from. Sometimes people get off this forgotten "railroad" that is a door to no one knows where. People, strange people, get off in the present-day caverns under present-day American cities.

Sometimes these people seem to be from centuries in the past. They do not stay here, but look around very disgustedly, get back in the car, disappear on their way to the next "magic stop."

There are seven magic planes, seven of these stops—each of which connects with another railroad to seven other magic stops.

No one knows anything very definite about it as no one ever comes back, to stay, from a trip upon it.

I have tried to give a picture of this "legend" of the caves, as well as a picture of the peculiar duplicity of the concept of "self" by "men" and a picture of the peculiar atmosphere of the caverns where "anything can happen and usually does."

The "duplicator" (called "twice") is also talked of there and I believe it exists! Make what you will of it, it is still a part of the lore of the caverns, and much of it I cannot understand, either. Or it is a purely entertaining invention, if you like that sort of thing.

it lost a letter through the finageling of the word-experts. It is "nopium" meaning "cannot open your eyes." And that's exactly the result of taking opium—you can't open your eyes! People used the alphabet to build words that *described* something. Shaver's alphabet, as we published it, was just a fragment. The whole key will make a much more effective tool.

WE want to thank such people as Dr. R. B. Hoag, Andrew Lang, Mrs. Mabel Smith, and literally dozens of others who have made voluntary contributions to our "files" of information pertinent to the Shaver Mystery. Hundreds of thousands of words of manuscript, dozens of paintings in full color, collections of strange occurrences, other unending cooperation. We asked for proof—and we got it! Only in AMAZING STORIES could such miracles be. You'll hear from us!—*Rap.*

The OBSERVATORY *by the Editor*

(Concluded from page 9)

more or less, which clarify everything—only we have forgotten that the meaning is in the alphabet, and not in the words made up from that alphabet! If you want to unlock the door, don't forget to use the key. It's useless to try to prove the door is really something else, and then walk through the void left by your specious argument. Word experts take a word like "opium" and say it means a drug and induces a drugged sleep, in spite of the fact that the word itself means "open your eyes." The word's meaning is lost because

WARLORD of PEACE

by LEROY YERXA

Daggerman had a plan to end war that
was foolproof—just install a pushbutton
atom bomb system under all cities, and . . .

AS A RULE, I'm not inclined to be a sorehead. In fact my position on United Viso-Features demands that I toss off tones of sweetness and light in all direction around the globe. Sometimes, though, I wish that people would get the cotton out of their ears, open their eyes and see what's going on about them in this world.

For example, last week we buried another "time-capsule." The International Guidance Council got the brilliant idea. Everyone went nuts over the thought of burying another collection of drivel in a big, metallic tube and sticking it into the ground for our ancestors to find and marvel over. It hasn't been long since the *last* "time-capsule" was found, and in it, a cross-section of drivel like that which can be found under several layers in any large city dump.

But we are burying another time-capsule amid great fan-fare. There are several thousand micro-film records of our entire civilization, which are on record throughout the world, and for that matter, the planetary system. It isn't enough. We had to bury a "time-capsule", and people stood around and mourned as though we were putting a slice of our very life into the niches in the rock.

People—sentimental, believing children.

I sat in the large telo-screen booth over at United-Viso last night. I was reading a creation delivered by Senator Ripping. The Senator is a "friend of the peepul."

"This nation," Ripping's speech read, and I was delivering it second-hand with a straight face, "has come far on the road to peace. Never have we, as a people, been on more friendly terms with our brothers. My friends, unaccustomed as I am to delivering . . ."

There was a lot more of the stuff. It near strangled me. I hoped that my evening news fans couldn't see the tongue in my cheek. I would have liked to stick it out.

I knew that Chuck Lambert, my boss and owner of United-Viso, was seated in his booth upstairs, keeping all his little "viso-etchings" running in straight lines, and grinning at my misery.

"Foremost among all men, and loved by us all," Ripping's speech labored on, "is Professor Phillip Daggerman, Chief Scientist for the International Guidance Council. His burial today was a blow from which we will never quite recover. He is a hero who will never . . ."

I choked on that one. Too much of the junk in one dose. I hid my face behind a water glass and gulped deeply. I felt a little better and managed to



Daggerman pulled the lever . . . the explosion was terrific

struggle through to the ending. I said:

"This is Bob Farnum of United-Viso-Features, turning the broadcast over to Ben Wallace who waits for you at . . ."

CHUCK LAMBERT switched the broadcast over to Wallace, who was waiting to cover the opera season down in the dim canyons of New York. I got up and wandered out of the booth and leaned against the water cooler. Lambert came down from the control-room. He grinned at me, and it cooled me off a little. Chuck Lambert isn't a big-shot. He's just a guy with a million bucks, a powerful transmitting station of his own, and a good nature. He stands five-foot-seven and can play wicked poker. I couldn't stay mad at him for long, at any given time. He was my brother-in-law, and he was my boss.

"That's awful tripe to swallow, isn't it Bob?"

"It is," I said bitterly. "People who live in glass houses—shouldn't. It seems to me that every politician around the globe was *born* in a glass house and has been heaving stones ever since."

Lambert put his hand on my shoulder. He wasn't soft about it. He knows how I feel.

"Mustn't go sour on the dear, dear 'peepul,'" he cautioned me. "After all, it's a living."

"And a good one," I admitted. "I haven't any kicks coming. Wasn't I voted the dream-man of the House-Wife's Radio Club?"

That's a gag I've been fighting for three years, but my boyish appearance and curly black hair just arouses the mother instinct, and I can't keep them from howling like she-wolves.

"Look," Chuck suggested as calmly as possible, "you're getting plenty sour.

I'm coming up for dinner. My sister should welcome me, even if you don't."

He made me feel silly, and like a small boy who's been griping about nothing.

"Sorry, Chuck," I said. "I get to thinking about Daggerman, and the stuff he pulled, and it burns me up. I keep remembering how it all started three years ago, in that same broadcasting booth I read Ripping's speech in tonight."

Three years ago? It had been a century, so far as my sour temper and its birth was concerned.

IT WAS in that same booth, during my usual morning broadcast. I had just opened the morning session of news and views.

"Bob Farnum, ladies, bringing the news into your life and I hope, giving you a few moments rest away from your kitchen . . ."

Chuck Lambert passed a note through the door at my elbow, his arm out of range of the telo-screen. I looked down at it, and I'm afraid the pleasant looked changed to bewilderment.

"Just a moment," I said over the screen, and picked up the note. "Ladies, a report of great interest has just been passed to me."

I gave them the winsome, toothy smile that I hate and they fall for, and started to read:

"The International Guidance Council has just announced the acceptance of a new protective system to be used throughout the world as a preventative against war. The services of Scientist Phillip Daggerman have been purchased. Daggerman has perfected a 'protecto-screen device' that will for all time, outlaw war."

I could picture all my housewife fans crawling away from the kitchen and coming to attention before the telo-

screen, their dish-water hands and scrub-women's knees forgotten. Women love to hear that a new way has been found to prevent war.

There wasn't any more to that dispatch, but knowing that politics were once more on the loose, I was worried. Two days later I had managed to digest a fair percentage of the hokum that was being peddled to the "common peepul." I was thunderstruck to find out that they were swallowing Daggerman's scheme hook, line and sinker.

Chuck Lambert, his sister Mary, and I, sat up many a sleepless night discussing what had happened. I imagine that a number of scientific minds had absorbed what was going on, but they had no opportunity to fight Daggerman. He had sold himself cleverly, and for keeps.

"Daggerman is smart," Chuck said one night, when we were eating sausage and pancakes at my apartment, and Mary was dashing around with a pretty, flushed face and a neatly tied apron. "Maybe he's got the right idea."

Mary, a slim brunette with all the needed special equipment and neat chassis, looked puzzled. She could look puzzled in a bright, attentive way. Something about the angle of her head, perched on one side when she asked a question.

"Just what *is* Daggerman's plan?"

"He's an old timer in politics," I told her. "He has the right background. Twenty years in the Government Atomic Research Lab., fifteen years at the Political College at New York. The way I get it, is this. Daggerman has been tossing theories at the International Guidance Council for years. Briefly, he says that no matter what treaties exist, one nation cannot trust another. Therefore, he will form a cooperation, accept a huge bounty from the Council and install complete atomic

war machines in every nation on earth."

I TOOK a deep breath, and Chuck applauded lightly.

"Nice speech, Mr. Farnum," he said. "I'll take another helping of sausage, Mary."

I smiled at Mary.

"Chuck's jealous," I said. "Secretly, he's impressed by my knowledge."

"As though I didn't know that Daggerman says at present atomic bombs are being turned out underground. During the last war, back in 1950, we didn't have the courage to go 'all-out' with atomic offense. We fooled around with marble-size explosives and left the king-size stuff alone."

"Right," I agreed. "Now Daggerman says that when one nation gets the lead, they'll crack down first and give everything they have, including the *atom-dust* blanket which won't leave much to pick up."

Chuck looked grim.

"That's the way with the human animal," he said. "It will tear down its house and kill its family brutally, then start to rebuild all over again."

"And Daggerman is going to see it done right this time. He is going to place deeply buried control bunkers in every capitol city on the planet. There will be push-button controls in each bunker, with a military man on duty at all times. Also he will place carefully aimed cannons in and about each capitol, with enough large atomic projectiles to blow every city off the map at a moment's notice."

Chuck swore softly, but I went on without paying any attention.

"Daggerman's theory is this. If we *all* have the same amount of war machinery, and we are *all* on the same basis so far as power to fight is concerned, then no one will dare start a war. We will be forever checkmated or

stalled. A damned ticklish idea, but they've fallen for it."

Chuck went for a bottle of fire-water and we tried some of it. The stuff was too potent. Chuck made a return trip to the kitchen for some chaser, and I tried out Mary's new lipstick. It tasted wonderful.

"Then Daggerman is going to put all the cards on the table," Chuck said when he came back.

I nodded.

"He's getting several billion dollars for the idea, and the installations. Daggerman can't lose."

Mary sighed.

"I'm beginning to understand," she admitted. "A fortune for Daggerman. Sooner or later, someone will lose their temper and the buttons will be pressed. Then it's just a matter of time before we visit our honorable ancestors."

Chuck found a comfortable spot on the divan and tasted his drink.

"The thing that puzzles me," he said slowly, "is that Daggerman either expects his plan to work, or he thinks he can escape the general hell that's bound to result."

"You forget," I reminded him dryly, "that human nature has changed, if we are to believe Daggerman. Once we *all* have a chance to blow our neighbors sky-high, we'll each be frightened to start the idea. That's what Daggerman is planning on."

ON THE way down to the studio, I brooded a lot over our discussion. For several weeks I watched each news-dispatch carefully, trying to read something behind the lines. There wasn't anything to read. It all seemed on the up and up. I remembered, so many times in history, when one leader had been clever enough to convince his followers that he was a god. This was exactly what had happened.

One thing troubled me in Daggerman's plan. He would gain in dollars and cents, yet what good would his money do when hell broke loose on earth? He would be destroyed with the others, *or would he?*

I sat upright in the rear of the cab and stared at the driver's head. He saw me through the rear-view mirror and grinned with his thick lips.

"You ain't Bob Farnum of United Viso, are you?" I nodded.

"My wife," he said. "She's nuts about you."

I told him thanks, and would he use the gasoline a little more freely. I was in a hurry.

When he let me out at the studio, I tossed him a buck and went to the office. I did a lot of thinking about Daggerman, and came to some pretty startling conclusions.

The more I worried about the thing, the more Daggerman seemed to be arguing against the logic that must be well mixed into his education. If you gave equal power to every nation, in the form of a lot of explosives it could dump into a neighbor's lap, sooner or later someone would lose his temper and do the dumping. Once it was started, there wasn't any possible answer but death for all.

I wondered if I could sell Chuck Lambert on the idea of doing a personal interview with Daggerman, over the facilities of United Viso-Features. It took a lot of convincing, but I finally sold Chuck on it.

There was a catch to it. Phillip Daggerman was a retiring cuss. He had built a small ranch house out in Arizona, hidden back in the Superstition Mountain Range. We had to ship a lot of stuff to Phoenix, and have it taken back into the hills by cat-track, that little donkey of the caterpillar-treads. I arranged a pass with the International

Guidance Council, got an okay from Daggerman, and on April sixteenth, the interview took place.

It cost Chuck Lambert a cool million to cover expenses, the planet had a chance to look upon the small, narrow faced genius who had saved it from destruction, and the whole thing gave me a chance to look the angles over from the dry, hell-hot scenery of the Superstition Range.

Daggerman's home was a modest diggings, and it didn't show the effects of a fortune at all. It didn't click. It didn't click at all.

BACK at the home office, I gave a dozen accounts of bird's-eye views of the *Great Man Himself*. I told what he ate for breakfast, how he lounged about in pajamas and viewed the earth as a good, safe place to be.

Meanwhile, I checked back with every damned wholesale house in and around Phoenix. There were stories of immense amounts of furniture, office equipment, power-plants, pipes, wiring, all consigned to Daggerman in the Superstitions. No one but myself, it seemed, wondered where he had hidden all this stuff in a ten room cottage without being a magician.

An unofficial check-up with "Bull" Bronson, a banking pal of mine, indicated that Daggerman had withdrawn fifteen million dollars from the International Bank at Berne, Switzerland, and had purchased all rights on the power trust controlling Boulder Dam.

Like the young man in ancient history who looked in that direction, I "went west." Two weeks work located the new set-up functioning under the Boulder Dam Trust. Daggerman had tried something new. Old timers said it wouldn't pay him a dime. Daggerman was sinking his money into an electro-cable, an offshoot of the main Boulder

line, to be run across the desert and into Mexico. This cheap electro-power, Daggerman said, would give him the opportunity of selling cheap power south of the border, and actually making cash on the deal.

Old timers said there was plenty of power down there, and more wasn't needed.

The oddest part of it all, to me, was that the new cable detoured several hundred miles east of the direct route and passed directly across Phillip Daggerman's property.

IN JUNE, I went prospecting. It took me two weeks of wandering before I found a place along the new cable that wasn't patrolled by guards. I worked with cutting tools and used the repair materials later, to put the thing back in shape. There wasn't a wire in that entire cable that was strong enough to carry electro-units. One shot of juice would have burned them in half.

There were fourteen small wires in the cable, of the same size and type used on the new atomic setup. I'm not smart, but I put two and two together, and the answer wasn't very pleasant.

* * *

Backed by Lambert, and sinking deeper into my boots, I sat before President Charloff of the International Guidance Council, explaining my side of the story. We met in the secrecy of the Grand Council Chamber, a holy political spot where you feel like taking off your shoes before entering. I didn't. I told them everything I had found out through five months of hard work and worry. I demanded, as an American citizen, that they start an investigation.

The Chief Judge stared at me gravely when I had finished. His two companions looked a little pale. At first they shouted and told me I was crazy, and they would not insult Daggerman by

asking him foolish questions.

"Suppose we are able to start such an investigation," the Chief Judge said at length. "If we are wrong. . . ?"

"It's still a free country, and a free International World. Daggerman can't protest. If he's innocent, why should he worry?"

Chuck really swung the tide, though. I'll give him credit.

"Suppose you refuse to start the investigation?" he said with a file-edge on his voice. "We at United Viso-Features will blow the top off the whole dirty business. In five hours, you'll have more committees parked on your steps than you can get rid of in ten years."

The judges protested in unison.

"Daggerman is smart, gentlemen," Chuck said calmly. "Once hell breaks loose, he'll retire underground and watch the fireworks. He's going to sit tight until we kill ourselves off. Then he'll look out, smile and take over the nicest real-estate deal that any man ever claimed. With the cash he now has, he can establish credit anywhere in the planetary system, bring laborers here and build up an earth, all his own."

"But the atomic upheaval would destroy him."

Chuck shook his head.

"Daggerman sold you a bill-of-goods, gentlemen," he said gravely. "Sure, the old books say that such an atomic explosion would start a chain reaction that might destroy every living thing on earth. That's all right, as far as it goes. I'll make a bet that Daggerman hasn't overlooked a trick. It's a matter of power screens to break up that chain reaction. With the money he has spent, and the equipment he has gathered, don't think that he hasn't fortified himself well."

THEY weren't convinced. I knew they weren't. But, give them

credit. They decided to take a chance. As I was able to pick up the story from semi-secret sources, it went roughly like this: One night, International Guards, who watched over Daggerman, forgot to be good watch-dogs. Secret Service men got through the lines and turned Daggerman's ranch upside down, quietly. They found piles of earth, covered with fruit orchards and such to hide them from the air. The dirt was stacked up high enough to indicate huge chambers beneath the earth. A lot of stuff showed up that didn't look good for a genius to own. The cable, traced through my previous work, was spliced at the ranch and went underground at that point.

The International Council called Daggerman to New York. Before he was called, the cable was cut apart in the desert and a detachment of troops was put at that spot to see that it did not grow together again.

Before Daggerman, and much to his amazement, Secret Service men told more about his business than he knew himself. For Daggerman, that was quite a blow.

I remember the day Daggerman died. They gave him a choice. He could die in public, or do away with himself. They preferred it that way, because it might upset the people to learn that Daggerman wasn't a hero after all. He went back to his ranch, under heavy guard. He retired to his secret chamber, after warning the guards to get away from that bit of real-estate, and then he pulled the levers.

He preferred it that way, rather than face the "electro-squad."

The explosion was seen a hundred miles away, and it knocked guards flat on their backs, at fifty.

I READ a touching story over the "telo-screen," concerning the death

of our hero. The words they had made up about him gagged me.

Two weeks later they placed a statue of Daggerman in the Central Square before the International Guidance Council chambers. The tablet in bronze read like this:

"To a hero who lived and died in the service of his people."

* * *

For some reason, not made entirely clear to the followers of our Hero, Daggerman, the International Guidance Council decided a short time later to scrap the check-mate system of atomic bomb control. Someone might make the mistake of pushing a button release during a moment of anger. Daggerman would have done it if they had given him time. He had the button system almost ready, and he would have made mince-meat of us all, leaving only himself hidden under that screen-protected bunker in Arizona.

* * . *

Life is a lot more simple now. The various nations go about their business again, secretly arming themselves and pretending to hope that nothing will come of it.

All in all, it isn't a bad idea. At least there is comfort in pretending that we love each other. None of that system Daggerman wanted, where we'd all sit and wait for the first—and last blow. This way, there is an element of surprise. With Daggerman, it was checkers, and he had all the Kings.

No, none of that "you press your button, and I'll press mine."

But you can understand why I hate so much mock sentiment. I hate this idea of burying another "time-capsule." Nine chances out of ten we'll never live

to dig it up again, anyhow. If someone does, they'll already have a complete history of us on micro-film, and the junk in the capsule will be—just junk.

WELL, as jobs go, mine isn't a bad one. I sit here before the viso-screen, handing out lightness and warmth to those poor women who believe everything I'm forced to tell them. It makes them happier that way. A week after Daggerman died, I married Mary. Chuck gave us a cottage for a wedding gift, and raised my wages fifty a month. It isn't so much, but of course I don't have the responsibilities that Phillip Daggerman had.

With any luck at all, I can get along without having to take the hard way out, like Daggerman did. I can live a pretty full life with Mary, at least until another Phillip Daggerman comes along. There is a lot more war talk right now. Mothers who listen to my broadcast are frightened and sending in letters. There's howling because they say, as their representative on the air waves, I should do something about keeping their sons at home.

Good Lord, I've heard that before somewhere. Well, if I get blown up, I guess I won't be alone. When I think of the International Guidance Council, batting its head against the wall, and Senator Ripping still giving his impassioned speeches for the greater good of "his peepul," I remember another guy who did a good job of pulling wool over our eyes, until his world blew up in his own face.

Yes, Daggerman was a smart guy. Too smart. People who live in glass houses. . . .

CHESS AND DOUBLE CHESS

by JOHN and DOROTHY de COURCY

Chess is a game that has been likened to war; might it be that war is also a game, played by greater beings, that compares with chess?





Young men plunged up the beach to
kill other young men

THEY were huge, unguessably huge. But for all their size they were more tenuous than the lightest gas. Once maybe, they might have been human, but no longer did they bear any resemblance to the mother race from which they sprang. Some philosophers might call them archangels, others might call them high-raised spirits, and still others might call them gods. No matter what the name, they were mighty and their battles, too, were mighty, for they fought often and brilliantly.

The earth shook with reverberations as they maneuvered the forces of earth's armies in the seemingly endless conflicts. Yet were they conflicts? From their Olympian heights, the earth looked amazingly like a spherical chess board, and armies and tank corps and fleets of ships startlingly resembled the pieces.

* * *

"Would you like white or black?" Dr. Rogers asked.

Peter Gaines shrugged his shoulders.
"It doesn't make any difference to me."

Dr. Rogers nodded and selected two pawns from the box. He shook them briefly between his cupped hands and extended his closed fists. Peter pointed to Dr. Rogers' right hand and the hand opened, revealing a black pawn. There was silence broken only by the click of the pieces as they were taken from the box and set up on the board. When the board was arranged, the two men leaned back in their chairs. Dr. Rogers removed a cigarette from his pocket and lit it. Inhaling a puff, he leaned forward.

"As usual," Dr. Rogers sighed, "pawn to king four."

Peter chuckled. "And, just as customarily, mine too."

* * *

Another artillery shell made a screaming trip and ended its life a dozen yards from the landing barge. Within the barge, the men swallowed hard and tried not to shake too much.

The young lieutenant put his mouth close to the captain's ear.

"I don't mind admitting I'm scared green."

The captain laughed softly.

"I am too. So's everybody else."

The lieutenant's mouth worked slightly.

"I sure as hell wish we weren't going to be the first to land."

"Somebody's got to make the opening," the captain answered. "It might as well be us. Anyway, we're only four seconds ahead of the next barge."

Both men turned to look at the beach through the tiny slit in the prow of the barge. The motor purred and water slapped the sides of the barge with monotonous regularity. Everyone had a great deal to say, but no one knew how to say it. Suddenly, a kid on the right side of the barge dropped his face in his right hand and began to cry. The lieutenant edged crabwise over to the

boy and put an arm around his shoulders.

"Keep your chin up, kid," he muttered. "The hard part'll be over in just a few minutes."

"Don't worry about me, lieutenant," the boy said hoarsely. "I'll be all right when I hit the beach."

The lieutenant nodded his head and patted the boy's back before crawling back to his station.

Slowly, the captain brought a whistle out of his pocket. He looked at it for a moment as though wondering what its shrill, fluttering voice could possibly accomplish. Then, turning his eyes back to the slit, he clamped the whistle between his teeth.

"Get ready, men!" the sergeant growled in a deep voice. "When the front goes down, get the hell out of here! And keep your heads down! Remember! If any of ya foul this detail up, I'll see ya rot on K.P.!"

The men laughed and the tension eased. Rifles were gripped more firmly and then—sand grated on the bottom of the barge. Rattle, crash, the bow fell to the beach. With a wild Indian war cry, a young Texan charged onto the beach and a young man from Brooklyn was right behind him screaming, "Kill the umpire!"

Onto the beach young men ran, half crouching, clutching their rifles. They ran, fell prone, fired wildly and died.

* * *

FARTHER up on the beach, young men crouched where they had been crouching for hours. While that first barge had purred uneventfully toward them, they had waited tensely in slit trenches and behind sand bags. The color of their uniforms was different from those of the men in the approaching barges and their language too. Yet, for all that, they were young men.

One of the men waiting began to sob.

He couldn't have been more than fifteen, yet already he was a non-commissioned officer. Another young man, an officer, edged toward him.

"Have courage, Hans. It will all be over soon," he whispered.

Hans nodded his head and brushed the tears out of his eyes with the back of his hand.

"I know, Herr Leutnant. I should not be frightened. The Fuehrer would not be frightened."

The young officer squeezed his arm. "Don't be ashamed, Hans. I am frightened. So is Herr Captain. If the Fuehrer were here, he would be frightened too."

"You should not say that, Herr Leutnant," the boy whispered, "but it makes me feel better."

"Maybe I should not have said it," the leutnant agreed, "but I have seen too much war. So much that maybe I am not a good soldier any more. I keep thinking about my family and about those men out there in the barges. You know, they have families, too."

"It is not good to think such things," the boy replied.

"I know that, too," the leutnant answered, "yet I know they do not want to kill me any more than I want to kill them. But they must, and I must."

The boy shivered involuntarily even though it was warm.

"Why don't we use the artillery, Herr Leutnant?" he asked. "We are only using that one old gun."

"We do not have very much ammunition," the leutnant answered, "so we have trained all the batteries on the beach. We hold our fire until they land."

"Why don't their ships fire at us?"

"They do not know where we are," Herr Leutnant replied. "When we start our artillery, then we get it."

The leutnant squeezed the boy's

arm reassuringly and crept back to his own station. Through his field glasses, he watched the barges. Lowering the glasses, the young officer drew his pistol. He rubbed the top of the barrel with a moist palm. He didn't realize it but his lips were forming the words to an old prayer, a prayer to a God that nobody seemed to believe in any more.

The first barge landed and the signal came. Guns fired—big guns, little guns. Then, from the ships at sea, the first salvos screamed through the air. Young men began-fighting. Suddenly a black object fell in the trench a few yards from the leutnant. Even before the young officer could think, a boy in a gray uniform leaped toward the little metal ball and fell on it.

"Deutschland Uber—"

The muffled thump of the exploding grenade supplied the final word. The others in the trench were shocked for a moment, but then they went back to their task, the task of young men killing young men.

* * *

DR. ROGERS cleared his throat and brought his knight to king's bishop three.

Peter studied the board. "It's strange," he mused. "As a psychologist I would say that a surprise move might be the best, but as a chess play, I know a standard defense is best."

Shrugging his shoulders, he moved his own knight to queen's bishop three.

"You might have something there," Dr. Rogers agreed. "The only drawback is that chess is almost as old as war and probably more thoroughly understood. Like in war, the tried and true method is usually the best. There's no other move quite as good as your defense with the knight."

"I should think that chess would

come up to date and replace the knight with something more modern."

"It has been tried," Dr. Rogers answered, "but in reality the knight is only a symbol. It might represent anything. For instance, in a certain type of battle it might represent cavalry or in another place, tanks supporting infantry. It could represent artillery too."

"Chess still doesn't represent actual warfare," Peter countered, "because it fails to take human psychology into consideration."

"I wouldn't say that," Dr. Rogers replied. "You're a psychologist and I'm a philosopher. To you, the human equation is always present, but to me the actions of groups of men have no particular basis on the human viewpoint. An infantry detachment is just as self-sacrificing as this pawn, but after all, the men that make the division up wouldn't behave the way the group does."

"There have been instances," Peter objected, "when people have done more or less than they were expected to do in a group action. The point I was trying to make is that I'm sure that my pawn is going to do just what I want it to. To make chess exactly the same as a battle, there should be times when I move a pawn in a certain way and find that the piece doesn't do what I planned."

"I'm afraid if that ever happened to me," Dr. Rogers smiled, "I would give up chess. The shock would be too great!"

* * *

FOR six hours cannon shells pounded the groups of young men on each side of the beach. Mortars thudded continuously, vomiting projectiles high in the air. Machine guns yammered unceasingly. The machinery of war went on and on, but the young men

who operated it were perishable. A young machine gunner emitted a startled yelp as a mortar shell exploded beside him. For a moment he stared stupidly at his own intestines lying on the ground in front of him. Then with frantic haste, he tried to stuff them back into his body. Only for a moment did he struggle. Then he fell forward over his gun and heaving a long sigh, quietly died.

The landing force dug in and men were grimly hanging on. In a pit not far from where they had landed, the young American lieutenant was holding the captain's head in his arms. The captain's shirt was soaked with blood. The lieutenant edged himself up and peeked over at two medics who were slowly inching their way toward him.

"Take it easy," he said softly. "The stretcher bearers are coming."

The captain coughed weakly.

"It won't do any good," he whispered. "I've—got—to—talk—fast. Tell—you—" The captain broke off in a fit of coughing. The coughs grew weaker and finally stopped. The captain wasn't breathing anymore.

Wearily the lieutenant waved the stretcher bearers back and turned to his business of killing young men.

The captain had tried hard to tell him that they were to withdraw at nightfall, but he hadn't. It was only a question of time until they were all dead. The lieutenant knew this but he didn't know why.

"I wonder if anyone knows why," he mumbled. "Why am I doing this? Why is anybody doing it?"

His thoughts were cut off by the muffled rumble of engines that rapidly grew louder. He waited tensely, watching. Then the planes came into view, B-25s, many B-25s.

Someone nearby screamed, "Hurray for the AAF! They're B-25s, boys!"

Seconds later the rumbled crash of fragmentation bombs shook the earth. Some of the artillery went out of action. The B-25s swooped lazily around and came back, the cannons in the noses of the planes exploding again and again and the machine guns cutting the earth to ribbons. Strangely, the American lieutenant didn't feel the least bit exultant.

"This is a dirty, dirty business," he thought.

* * *

HERR LEUTNANT gripped the field telephone in his hands. The instrument had gone dead several minutes ago and repair crews were still working. Anxiously the officer glanced at his watch. A man brushed by him carrying a box of ammunition. Wearily the leutnant waited while the handset snapped and crackled. The telephone somehow represented security. It was the only contact he and the small group of defenders on the beach had with the world outside. Even men in a trapped submarine, the leutnant recalled, breathed more easily when they could talk to someone outside. That's the way the leutnant felt. Trapped!

A new sound intruded on his consciousness, the heavy pounding of many radial engines. He lifted his head enough to peek over the trench and he saw them. Instantly recognition caused his eyes to narrow.

"Billy Mitchells! Gott! Hundreds of them!"

He watched them roar a few hundred feet off the ground. The sound he dreaded rolled in great waves. He looked helplessly at the mute telephone waiting for the bombers to return. He counted the seconds, hardly breathing and then the hell began again. This time it was the staccato crash of the Mitchells' nose cannons. Two minutes later, it was quiet, deathly quiet. Herr

Leutnant jumped as the buzzer on the field telephone sounded. Quickly he jabbed the contact and barked, "Leutnant Hardt!"

A tiny voice replied, "This is Leutnant Schmidt in command of artillery. Our batteries have been wiped out. Headquarters was blown to bits in the assault. Herr General Stusser is dead."

"Are there any other officers?" Herr Leutnant asked.

"None but me."

"I'm alone too," Hardt said. "What shall we do!"

"We wait," Herr Leutnant Schmidt replied. "Colonel Wiegand is bringing up railway guns. We must hold out at all cost! Sieg Heil!"

Mechanically Herr Leutnant Hardt replied, "Sieg Heil!"

* * *

DR. ROGERS extended his hand toward the board. Taking his king's bishop he moved it to queen's knight five.

As Dr. Rogers straightened up, Peter said musingly, "I wonder what Lopez had in mind when he invented that move?"

"Winning chess games, I suppose," Dr. Rogers answered.

"What I mean," Peter explained, "is just what section of warfare did he believe his bishop was representing?"

"Frankly, I don't think Lopez gave it much thought. As I said before, the values change. At one stage, it might represent chariots. At another, it could have been crossbows. Today I imagine it represents aircraft."

"How so? The value of a bishop is about equal to a knight or to two and one-half or three pawns. Surely air power is of greater value than artillery, if you want to call the knights artillery."

"Well, actually, modern warfare isn't a single chess game," Dr. Rogers ex-

plained. "It's better likened to a chess tournament or a series of games. This game we're playing might only represent the siege of a small town or possibly the taking of a beach-head."

"Well—" Peter replied, "I guess my best move is to bring out my other knight and threaten your king's pawn. Now let's see. If this were war, I would be bringing up more artillery."

"Exactly! After all, the object that you are going after isn't my bishop, or as you would say, my air power, but rather you're trying to capture my pawn or my infantry detachment."

"Maybe you're right," Peter answered, bring his second knight into the fray.

* * *

THE flagship of the American task force shuddered as its cannon hurled tons of steel toward the hotly contested beach. On the bridge an admiral lowered his binoculars and turned to a general.

"Well General," he said. "Everything seems to be going according to plan."

"I wonder," the general sighed. "We knocked their artillery out, but I'm convinced they must have more."

The admiral shook his head. "I don't see where they could put it."

"Neither can I, but surely they have more adequate defenses than this!"

"Well," the admiral replied, "they apparently didn't. Besides, the landing was pretty much of a surprise, I think."

"That's true, but nevertheless, the enemy must have considered the possibility of a landing here, yet I can't see where they have made any adequate defense. They should at least have a railroad line."

A lieutenant commander looked at the general. "If you'll pardon the interruption, sir, I believe there is a rail-

road line."

"What!" the general exploded. "Where? It doesn't show on the reconnaissance photos!"

"I don't know if it's still there or not, sir, but I was an art student before the war and I used to come down here to paint sea scapes."

"Quick!" the general barked excitedly. "Show me on the map!"

The naval officer studied the photo panorama and shook his head. "I'm not quite sure, sir, but I thought it ran along here, about where this stream is." He pointed with his finger. "Of course, I may be all wet. I wouldn't bet money on it anyway."

The general's brows knitted for a moment.

"By God, that was a clever one," he muttered.

"What is it, General?" the admiral asked.

"I should have seen it before! There's *is* a railroad there. Under the water! They sprinkled the roadbed with white sand so that the rails wouldn't show and dyked up their spur line, diverting a stream so that it flowed over it. To all appearances, it looks just like another stream. The water's only about six to eight inches deep probably. Look here!" The General pointed to a spot. "You can see the natural lay of the land would carry the water through this gully. That means an artificial bank has been built up there."

"Shall we try to shell it?"

"I'm afraid we're too late for that, but I think we can save our fleet. We'll have to withdraw."

"Do we have time to send the landing barges?"

The general shook his head. "The only thing we can do is send in amphibious tanks and hope the boys on the beach can hold out long enough for

them to get there."

Even as the General's orders were being carried out, heavy reverberations rolled across the water. The general's knuckles turned white as he gripped the edge of the bridge. Tall plumes of sand shot up from the beach as the enemy's long range artillery opened up.

"I feel like a heel," the general muttered as the flagship withdrew.

As the rapidly moving flagship turned away, amphibious tanks lurched out of the bows of landing craft and splashed into the water like overgrown seals.

"At least this gives the men a chance," the general murmured, "but not much of one."

It was a long, long way from the landing craft to the beach; much too long, and the general knew it.

* * *

"I THINK I see a flaw in your simile," Peter smiled triumphantly.

Dr. Rogers raised his eyebrows questioningly.

"First, what corresponds to the rook in modern warfare?"

"Well—" Dr. Rogers pursed his lips. I guess the rook's value is about the same. Once it represented the armored siege tower. Today it would still represent an armored force, tanks and armored cars probably."

"Exactly!" Peter said. "Now my guess is that your next move will be to castle rather than defend your pawn."

Dr. Rogers nodded his head. "It's worth sacrificing a pawn to castle at this point."

Peter chuckled. "Reverting to our original parallel, where would you find such a situation in planned warfare? That is, where would you find the general retreating and sending up an armored force at the same time, feeling that it is better to sacrifice an infantry division rather than try to rein-

force it?"

"I don't quite get your point," Dr. Rogers said, puzzled.

"I mean, where would a general retreat as he was sending up an armored column? As I understand it, the general would follow closely behind an armored unit."

"Oh I see what you're driving at," Dr. Rogers answered. "I guess such a situation probably would never happen, but to insert human values into a chess game would mean making it exactly like warfare. I only maintain that it is strikingly similar. A general is a single man in the game and naturally his values change the game to a certain extent, but in chess the position is worth the sacrifice and a general wouldn't sacrifice men for so slight a gain. In general, you must admit that with the exception of white castling in the Ruy Lopez, the parallel is certainly startling."

Dr. Rogers castled on the king's side.

Peter Gaines chuckled as he touched his knight. "It's funny, but I have sort of a twinge of conscience. I'm about to turn loose my artillery and annihilate a group of men. I think I'll stop putting human values on the pieces before it starts ruining my game."

Both men laughed as Peter captured the white pawn.

"TWO minutes," Herr Leutnant mumbled. "In only two minutes Colonel Wiegand opens fire."

Through Herr Leutnant's mind passed the picture of many young men being blown to bits. Leutnant Hardt had only a hazy idea of what America was like, but he knew that somewhere wives, mothers and sweethearts were waiting for these boys, so like him in everything but the color of uniform.

Herr Leutnant glanced at his watch again. "One minute, thirty seconds. Oh Gott! If there is a God, why must

this be!"

Unashamed tears were trickling down Herr Leutnant's face. There must be something, SOMETHING, he could do! This bloodshed was so senseless, so pointless. Many time he had had the same thought. Many times he had wished so desperately that he could do something to save even one life. He felt as though he were caught in some terrible, inexorable machine that was grinding himself and all humanity to a powder for no apparent reason.

"Gladly, gladly," he muttered, "I would give my life to stop this nightmare."

The sand in the hour glass, the hands on the clock moved on unheeding while Herr Leutnant's mind raced. He had made his decision. If there was a way to save those young men, he would find it. Suddenly he had it! The way! He glanced at his watch. One minute, twenty seconds. If he ordered his men to retreat, to run, to charge away from the beach, the Americans would follow.

Maybe, just maybe, they would escape the artillery.

Quickly Herr Leutnant Hardt clamped a whistle in his teeth and vaulted to the top of the trench. Half crouched on the ground, he shouted to his men.

"Achtung! Achtung!"

He drew a breath to blow the whistle, the whistle that meant life to hundreds of young men. His right arm was extended high over his head, but the gesture never came. The whistle was never blown. The crack of the rifle that killed Herr Leutnant Hardt was lost in the din. For a moment, Herr Leutnant remained half crouched with his arm in the air, the whistle between his teeth. As his eyes glazed, the arm that was to lead the men in mad retreat, fell toward the invading force. Herr Leutnant lay limply on the ground, al-

most, but not quite, the savior of many young men.

Then hell in steel cases rained on the beach, hardly missing a square foot. The defenders of the beach waited tensely in their trenches while man-made thunder rolled and echoed. Observers saw the amphibious tanks swerve in their course. They were too late, much too late. The amphibious tanks, looking like gigantic turtles, turned away.

Soon, there was nothing to be seen. The task force had gone. Guns barked no more. Men hurried this way and that making homes in the sand for newly dead young men. Herr Colonel Wiegand stood stiffly over the body of Herr Leutnant Hardt. A boyish German soldier sniffed and cleared his throat.

"If I may speak, Herr Colonel," the boy began timidly.

The Colonel nodded.

"The Fuehrer would have been proud. Herr Leutnant saw the Americans preparing to advance and fearing that they would escape your artillery, Herr Leutnant leaped from the trench and pretended to be leading a charge. His ruse worked, Herr Colonel, but Herr Leutnant was killed just before Herr Colonel's artillery opened fire."

The boy stood at rigid attention, saluted stiffly, and march away.

Herr Colonel knelt beside the body of Herr Leutnant. The colonel's face was lined and his eyes were suspiciously wet. Slowly, from his uniform, he detached a medal and pinned it on the dead Herr Leutnant.

"So like my own Johann," he murmured. "He died a hero too, Herr Leutnant, but I wish neither of you had done it."

Quickly Herr Colonel arose and walked away. He didn't look at all Prussian now.

* * *

THHEY were huge, unguessably huge. But for all their size, they were more tenuous than the lightest gas. From their Olympian heights, the earth looked amazingly like a spherical chess board, and armies and tank corps and fleets of ships startlingly resembled the pieces.



OLD AGE BEGINS AT?



DR. DU NOUY, one-time associate of the late Alexis Carrel, says that cell activity rates drop from childhood to about the age of thirty-two at an extremely rapid rate. Healing processes slow down greatly with advancing age, as do all the other processes of life. After the approximate age of thirty-two the slowing-down is much more gradual. However the average man of fifty lives at about one-fourth the rate as the average child of ten. All of which is just one more indication that "we begin to die from birth." But where does the disease recognized at "old age" begin? Does it possibly begin with the failure of the growing mechanism to keep pace with the demands of an unestablished and hypothetical "normal" rate of growth? Or shall we say, with the custom, that old age begins when the growth mechanism has failed completely and key cells begin to die "en masse".

The Russian scientists have beat their gums about the way they hauled their dogs around the Crimea and the Caucasus looking for men who lived longer than the Bible says they should. They took these men and studied the various body tissues, deciding that the lymph and allied tissues in the marrow of the bones, the liver etc. contained a mysterious something that combated the slowing-down or dying process. Unfortunately, the Russian approach has taken somewhat for granted that the longevity of men in certain areas is owing to hereditary traits. Little attention has been paid to the chemical implications of the environment which may have played a tremendous part in the picture.

When the jaw-hone stops growing in the average man at about the age of thirty-five, the imperceptible changes in metabolism which form the substructure for "natural death" are on the road to victory. Probably no power on earth could ever make the wonderful human body so completely integrated that it could survive indefinitely after its machinery had been thoroughly mistreated, mentally, morally, physically, chemically and spiritually for thirty-five years. A.C.S. serum may be used to pump up the punctured tire, but it does not fix the leak.

Wherever age actually begins to become "old age" in the human cycle doesn't really matter so much. It is quite obvious that the factors which

A thought flashed from one to the other. "I have often considered what I should do if one of my pieces should do other than what I plan."

The other's thought was amused as he replied. "I'm afraid if that should ever happen, I would never play the game again. The shock would be too great."

bring it about may begin to work against life even before birth, even before conception. The matter of great moment is that the possibility is opened up by the Russian experiments that before many years all the factors operating to produce the ageing effects may be well enough understood and assembled that one's body may actually be theoretically everlasting. However, this environment, full of the tick-tocking of the cosmic rays, the inadequate nutritional phases of life, the incongruous and continuous and needless destructive impulses of our own kind, does not seem to be the ideal location for hoping to defeat old age. The load of radioactivity, the ever-increasing ratio of isotopic forms of elements to their original true forms, the failure of coordination and integration of the resources of science, industry and humanity to the purpose of the positive advancement of the race are enough in themselves to make the picture a bit murky.

That it should be possible for the race to achieve such an aim as the defeating of the processes of senility, is indicated, though far from demonstrated, by the formulation of the atom bomb. It has been said that with God all things are possible. It is virtually true that there is no definite limit upon the creative opportunities with which man is faced today. He is one jump from spatial navigation. His numbers are great, his resources are just beginning to come to light in respect to natural resources and mental ability, and only his will to believe in tomorrow is the limit upon his future accomplishments.

When the day arrives, if ever, when man can stop hating his kind, and destroying his kind, so as to devote every energy to the subduing of what is essentially a hostile environment, he will obviously begin to live longer, even if it were not the definitely-formed vision of the vanguard of total human mentality, already. The continuously jealous attitude of mind even among the most erudite scientists is obvious enough that a school-boy can descry it in the daily newspapers. If these minds are the best, which is doubtful, what sort of thing less than world catastrophe will ever cement real unions among men?

Where does old age begin—? Perhaps a more reasonable question would be, "When does life become a reality?"—Carter T. Wainwright.



TITANS' BATTLE

by HEINRICH HAUSER



The Third World War roared over the world
and left ruin in its wake; then science learned to
make food from stone, and giants walked again

CHAPTER I

A Brief History of The World Between The Second World War And The Golden Age Of The Mamlock-Foods.

FOR a beginning we can do no better than to quote from Prof. Delmar, the eminent sociologist who in the 1987 edition of the "Encyclopedia Mundana" reviewed mankind's development over the past two hundred years as follows:

"The Rise and the Fall of the Titans, the sound and the fury of which has filled the greater part of our century, has come to pass with historical inevitability. It could have been anticipated—in fact it was foreseen in the 20th century. After the Second World War, in 1946 to be exact, one Virgil Jordan, an American, President of the "National Industrial Conference Board", wrote a remarkable "Manifesto for the Atomic Age" wherein he said:

"We are entering the age of molecular magic . . . when we shall be able to produce anything, anywhere, out of nothing, and at almost no cost . . . when labor will have no market and money no value . . . when the falling birthrate will depopulate America and Europe, unless scientists can devise means for mass production of test-tube babies . . . when the unlimited power of the state . . . will lead inevitably to unlimited government . . . when the great danger will be boredom and frustration of people with nothing to do . . . unless in the meantime, mankind destroys itself by some deliberate stupidity, or some mistake in the position of a decimal point."

"We—so continues Prof. Delmar—"who have just escaped by the skin of our teeth this wholesale destruction,

must wonder why the tremendous opportunities opened up by science and technology in the 19th century have been so sorely abused in the 20th; why the world entered the age of the "Contesting States" and after that the "Age of the New Babylons" from which the Science-Tyrants and the Titans arose. Why was it that the high hopes of mankind for an "Age of Reason" have been so bitterly frustrated and had to end in that resplendent civilization's catastrophic suicide?

"The answer lies in the structure of the human mind. This mind resembles an iceberg, nine-tenths of which is hidden below the surface. Practically all the Utopias of the past centuries were based on the assumption that Man, through proper education, could be made wholly rational in all his actions. However it is only the small peak of the conscious mind which is accessible to education whereas the large bulk of the subconscious mind remains subject to the irrational impulses and instincts which were deposited there during the eons of our species-development.

"A mere six thousand years of civilization-development stand as against more than a million years of species-development. The forceful and desperate attempts of the past civilizations to suppress and to uproot the primitive instincts were unable to kill the savage and the beast in Man. All they could do was to drive the primitive instincts largely "underground", to chain them up in the cellar of the subconscious, where they became all the more vicious and in periodic outbreaks caused the destruction of all of civilization's works. Hence the "dark ages" which time and again have come over the world. It is only today that we are beginning to understand our own nature, that we are starting to work hand in hand with it, instead of working

against it. In the striking of a proper balance between the animal nature and the intellect of Man lies the only hope for the survival of our race."

So much from Prof. Delmar; it goes to show that the indomitable human spirit survived even the Monsters and the Titans, just as in the 20th century it had survived the Atom bomb. It also shows us the deeper reason behind the "Age of the Contesting States" from which this story starts:

CHAPTER II

One World—At Last.

NONE was alive of the veterans of the First World War, of the generation which had hoped to make the world safe for Democracy. None was alive of the next generation which after the cataclysm of the Second World War had hoped at least for "Peace in Our Time". The atomic typhoon of the Third World War had swept across civilization; the broad swath of its destruction girdled the earth, and—as foreseen by the scientists themselves—it had brought no militarily decisive result; it had ended in a stalemate of destruction.

Yet, one great result at least *had* been achieved, one great truth *had* been driven home and in the only manner mankind ever learns—in the flesh that is—in sweat and blood and tears: *This is one world.*

With the stench of the smouldering cadavers of their fellow men still in their nostrils, the ruin-dwellers of London, New York, Pittsburgh, Philadelphia, Los Angeles, Moscow, Molotov, Stalingrad, Brussels, Hamburg, Berlin, Milan and Marseilles were united in a clarity of thought which told them:

"We cannot escape this science and

this technology, but they have got to be brought under control. We belong to one another; nationalism is obsolete. The hunger of the man in Cambodia is my hunger, the cannibalism of the wandering hordes is my responsibility; the underpopulated regions of the world belong to all of us in common trust, the oceans too, the ores in the ground, the wheat of the antipodes, the discoveries of the laboratories everywhere . . ."

There was immortal glory in this ending of the greatest human tragedy as all over the world the people got together to atone for the disaster. There was greatness in the messages which the leading scientists sent to one another at the very start of the hostilities. Breaking all the governmental rules of censorship the best brains of the world—physicists, chemists, sociologists, doctors—shook hands across the oceans and frontiers, over the radionic waves and expressed their shame and their loathing of the destructive tasks into which they were forced by their respective rulers. There was greatness in the food and relief-ships which the enemies of yesterday despatched to one another in order to aid the devastation which mutually they had worked. There was greatness even in a quarter where almost nobody would have expected it: amongst the statesmen. Their conferences—Washington in 1991, Moscow in '92 and London the same year—were held in the sombre midst of the vast new cemeteries. There, with row after row of little white crosses radiating endlessly into the void of crumbled city-blocks, over the graves of a million murdered children the unprecedented came to pass: hard-boiled politicians bowed their heads, confessed their grievous inadequacy, renounced their own rule and handed powers over to a World-Council of

Scientists. It was thus that the great Renaissance of the 22nd century was inaugurated.

CHAPTER III

The Golden Age of the Machine.

THE machine had been born and raised in the narrow cage of the 19th century nationalist states and their social patterns. The enormity of its potential dangers had been divined from the very beginning by the rulers, by the artisans from whom it took their livelihood, by the peasants who were forced into the factories, by the inventors themselves. Hence the many barriers, the restrictions, the suppressions and the sabotagings against the machine. However the new ideas which had been born into the world could not be choked; as the machine grew up, its locked-up forces bursted the old cage. That was the century of the social revolutions and the contesting States.

Now the old order of things was overthrown, the machine was liberated. A fierce young generation, hardened in the fires of war, desperately resolved to build a better world, staked its hopes on science and technology.

With vast tracts of once fertile farmland scorched and still dangerously radioactive from the Third World War, with millions of refugees roaming and plundering the countryside, with desperate masses swarming through the rubble of what once were big cities, the paramount problem was food. It was obvious to the leading scientists that not enough food could be grown and transported in time to avoid mass-starvation of practically all the civilized populations of the earth, that the only possible solution lay in the creation of synthetic foods from inorganic matter.

In the underground laboratories

which had survived the war intact, the scientists attacked this problem with the same sense of urgency as their predecessors of the Second World War had attacked the atom; only this time the coordination of their work was on a worldwide scale.

The groundwork had already been laid in the 20th century; edible fats had been produced from coal as early as 1942; now, almost overnight all kinds of foods from inorganic matter had to be synthesized and mass-produced on the largest scale.

The first news that a way had been discovered to transform stones into bread came by the end of 1992 from Scotland where Prof. Mamlock headed the Edinburgh Laboratories. Here the work had started decades ago in anticipation of a famine-situation if Britain were again plunged into war. Mamlock, small of stature, mild mannered and bearded, had begun not from the basis of the inorganic compositions, but from studies of the living cell in animal and vegetable organisms. He was a fanatic who picked for his assistants biologists, chemists and physicists who like himself hated nothing so much as the absurd dependency of man upon the soil, upon rains and droughts, the accidents of nature. Living as they did in a rambling old castle on a hunting-preserve of the defunct nobility, these men loathed the sight of the green barley-fields, of the meadow with their burlesque accumulations of cattle, of the very bread they still had to eat. Animal-muscles; why that was food fit only to be torn by the teeth of savages. A bakery, that was a thing one read about on the stone-tablets of the Assyrians. Man had to be freed from living by the grace of the farmer and the grace of chance. . . .

The Elizabethan castle, of course, was only headquarters where Mamlock

with his two hundred closest assistants lived. Around it in the park there spread the long barracks, carefully camouflaged, hothouses for the plants, stables for the higher animals, experimental stations for dogs and monkeys, white mice and guinea pigs plus barrack-like hotels for Mamlock's "guests." The laboratories proper were built deep into the hillside, their inner sanctums hundreds of feet underground, heavily guarded just as the whole area was fenced in with high-tension wire and constantly patroled.

FOR work had reached a stage where it became necessary to go beyond the plants, the mice, the guinea pigs, where the new Mamlock-foods had to be tested on the human body; this under the pressure of approaching universal famine on the largest scale. Hundreds of scientific workers, young and old from every nation in the world had already brought the supreme sacrifice. It would have been disastrous to continue the squandering of the most valuable human materiel. Immediately after the armistice Mamlock had appealed to the World-Council. In the utmost secrecy the Senate of the Scientists had debated the grave question; with the very life of perhaps half a billion human beings at stake, the decision was made to provide the Edinburgh Laboratories with the necessary human guinea pigs.

These men and women were not told what their destination was going to be. Assembled in all parts of the world, carefully screened and tested by the medics for mental balance and physical stamina, they were informed of some "recreation center" where their health would be built up and where simultaneously they could render the greatest service to a momentous scientific work. The batches of the unsuspecting victims

were then flown to Scotland and as the gates closed behind Mamlock's "guests" their fate was as much sealed as that of the cattle in the stockyards of Chicago. But they knew it not. Comfortably resting in their well equipped hotels they enjoyed like tourists the beauties of the hills, the lakes, the heather. Games they played in the large landscaped park; fishing they went and swimming and three times a day they gladly followed the invitation of the dinner bell into the vast banquet-hall where Mamlock himself presided at the head of the tables, looking half like a Scottish laird of old and half like a Buddhist priest in the long yellow gown he wore like all the members of his staff. There was a charming, a patriarchic hospitality in the logs which flamed in the huge fireplace; there was good cheer in the abundant food, in the glow of the wine and the attention lavished on the guests by young interns who wore the yellow uniforms to distinguish them from the green gowns of the visitors.

In later years the older scientists always frowned when their younger colleagues as much as hinted at Mamlock's tableround with questioning eyes and queer little smiles. They hated the memory; all too painfully it was reminiscent of certain human guinea pig experiments made by the Nazis in the Second World War.

"There are things which have got to be done, but better not be talked about," they would mumble, and then change the conversation.

The guests, carefully picked as they were for normality, just average men and women suspected not a certain strangeness of taste, of texture and of looks in the food they ate. For was it not a nutritional experiment in which to aid they had been selected in the first place? Whatever it was, it tasted

swell and it was satisfying; the purplish, the liverlike substances were as juicy as the best of steaks. They had no inkling that what looked like or almost like familiar foods was just a basis, were just vehicles which carried the weird new substances won from inorganic matter. Neither did they think it strange that they were weighed after every meal, that blood and metabolism tests and radiocardiograms were made daily. Why not? Did not the kindly men in the yellow uniforms subject themselves to the same tests? All those controls, what else could they mean but the humane concern, the beneficial interest which Science took in the welfare of its guests?

They did not wonder at the slight discoloration of their skins which came too gradually to be noticed much. Likewise it seemed quite natural, since groups of new guests continuously came pouring into the rehabilitation center, that others should depart. In twos and threes, mostly, but sometimes in whole batches, familiar faces disappeared from Mamlock's tableround; presumably flown home with gain in weight and much improved by their complete rest. There was about a monthly turnover amongst the 500 "greens" in Mamlock's tableround.

THOSE whom the tests showed ready to "travel" were usually awakened after midnight. In the soundproofed quietness of their comfortable bedrooms the lights flashed on; the terrified individual, a man or a woman, saw a little group of the priestlike men in yellow gowns standing by his bedside.

"Are you ready and willing to sacrifice one of your limbs, or one of your organs for Mankind?" Bluntly, directly, without any preparation, this momentous question was asked.

Most of the victims were stunned

with the impact; they shook, their shattering teeth were unable to form words, many screamed. But quite a surprising number after the first shock calmed down sufficiently to think. Still trembling they would sit on their beds, ask for a drink, light a cigarette. Then with their eyes riveted to the serious faces of the young scientists they asked their questions in return:

"What is this all about? Why are you doing this?"

They got the frankest, the fullest explanation. How the fate of humanity depended upon the success of the synthetic foods. Why the experiments could not be made with animals. That there were no greater heroes than those who brought this supreme sacrifice; that monuments of gratitude would be erected to their memory.

The victims clasped their throbbing heads; they thought it over and after a while they would stammer through gnashing teeth:

"Okay, if it has to be. I'm not that important. If I can contribute something, take my body. Go ahead; show what you can do."

If this should sound incredible it must be remembered that this was after the Third World War when civilization had almost committed suicide, when human life was cheap as berries, when mankind was exhausted to a point where most were ready to face death almost with relief.

After this interview of decision the men, the women, clothed in festive green were immediately whisked down the elevators; ambulances carried them through the subterranean tunnel to that vast hospital deep in the mountain's womb. In a trance-like state of horror mingled with glory, already under the influence of a narcotic, they walked through the enormous wards, past the englassed cages with the high white

beds, past the rows of iron lungs with their protruding human heads, past gas-chambers filled with weird apparatus and shrouded figures who, automaton-like, spread and closed fingers in the grip of death; past muffled moanings which sounded like a childish singsong without end.

In the strange exaltation of their souls nothing deterred them. Willingly, almost joyously they entered the surgery, breathed its moist, tropical air vibrant with strangeness and danger, surveyed its gleaming mechanisms before they lay down on the operating table and felt the mask of blessed oblivion sink down over their eyes. In their perverse, their drug and emotion-inspired happiness, they smiled and sang until the last moment when their brains were blotted out.

More than a thousand beds, plus more than a thousand air conditioned sound proofed cells for voluntary vivisection had Mamlock's subterranean hospital for the thousands of experiments which were going on at any given time. In drugged stupor men and women lay suspended between life and death on water beds, in incubators, in metal cylinders, under oxygen tents, in gas-filled caskets of glass. From Cape-town they had come, from Sydney, Berlin, Paris, from New Jersey and Detroit; cities which were no more; from farms where they had walked green meadows, where they had reaped rich fields which were no more. Just as now they themselves were hardly human any more, not integrated bodies and live souls, but mere accumulations of tissues and organs opened by the knife, shot through with needles, kept apart with clamps, interspersed with tubes of glass and of rubber through which the body-juices flowed, drainage of pus, cell matter disintegrating from chemicals. Drop feeding went into the

mouths which moaned in agony even while unconscious. From bubbling bottles plasma and blood went dripping into the veins. Penicillin powdered with its yellow the open body-cavities from which the intestines spilled out into huge vessels where in their peristaltic motions they hung transparent, beset with thermometers, recording-arms, bathed in salt solutions and in glaring lights.

SOME had the caps of their skulls removed; the hairy capsule, still connected by the skin hinged sideways while the soft brain pulsating with its throbbing veins oozed out into a bed of heavy liquid. Vapors of body-warmth wafted from the liquid bed as surgeons worked, inserting with eyes in their fingertips, the scores of wires and of tubes deep into the furrows of grey matter, measuring pressures, registering infinitesimal amounts of electricity, blocking sections of thought, evacuating nerve-cells, administering small electric shocks.

With masks before their faces the yellow priests of science moved noiselessly on their rubber soles amongst these countless altars decked out with human sacrifice and from the wards, the cells, into the equally vast hospital for animals where sick rheumus monkeys crouched with dimmed eyes, where dogs whimpered behind glass walls and white mice dragged their paralyzed hind quarters along the ground.

Testing, measuring, comparing notes, scanning the records, nervously exhausted themselves and kept going only by stimulants and tremendous tension of their work, the yellow priests then went to hothouses where starved or overstimulated plants hung their leaves, or pushed out shoots, spilled resins, blossomed, died in struggling with new food and chemicals.

The weirdest part of the Edinburgh laboratories was probably its "cemetery," huge as the catacombs of Rome and vaulted. There in glass coffins, tier upon tier, lay the dead; their narrow chambers were flooded with strong lights and even in death they did not rest.

For in their very decomposition the bodies of those whom science had murdered, still were of scientific interest. As if there were still breath of life in them these bodies were wired for electric currents, were connected with scores of tubes and suction-pumps which drained the gases, drained the liquids for the post mortem tests of synthetic food-effects. In all kinds of temperature, from tropical heat to zero the living cells of the dead were studied; thus manufactured death became itself a factory.

By the end of 1993 approximately ten thousand human beings had been sacrificed in the Edinburgh laboratories and their counterparts in America and on the European continent. Mamlock had won the race; the problem of turning into bread the very stone of the earth was solved in principle. It was not a 100% success for even Mamlock never succeeded in the total elimination of organic matter in the synthetic foods. Auxiliary material from animal bodies and vegetable matter was still needed in the transformation of coal, limestone and ores into edibles, but they were needed in extremely small quantity. Mamlock was justified in boasting that he had reached a point where he needed no more organic matter in the preparation of his synthetic foods than the bakers of old needed yeast in the making of bread.

Soft spoken, cynical Mamlock, his fiery red beard now an ashen grey, released the results of his lifework to the World Council of Scientists, adding

that all that was needed now was mass production of the new foods, a mass production for which of course one needed above all America.

CHAPTER IV

First effects of synthetic foods: Freedom from Want.

THE impact of Mamlock's momentous discovery upon the local Senates of the leading scientists can only be compared to that of the atomic bomb half a century before. There was divided council amongst the scientists themselves as to the ultimate consequences.

"Mankind is not ripe for the social revolution of the synthetic foods," cautioned the older generation. "Farmers will be ruined all over the world. Whole countries tamed by the toil of our ancestors will revert into wilderness. The long-range effects of the synthetic foods are not sufficiently tested; they may prove detrimental; let's wait . . ."

"We cannot afford to wait," came the answer from the younger generation of scientists: "The masses are starving; the synthetic foods are the only means to save these lives. Freedom from want will inaugurate a new era of peace, progress, human dignity. Whether mankind is ripe for it or not; the social revolution can not be halted anyway. When food production from the soil is obsolete, it has to be abandoned just as the horse and buggy had to be abandoned when the auto came."

Washington, still under some influence from the farm bloc, hesitated longest. London, Kuibyshev, Berlin and Calcutta meanwhile went ahead with the conversion of their underground factories which had produced weapons and ammunitions for the Atomic War but yesteryear.

Finally Alice Kyteler, America's foremost chemist and the first female president of the vast Dupont concern won out over the conservatives amongst the scientists; the full weight of America's biggest surviving industry was thrown behind the effort to produce the Mamlock-foods.

Revolt broke out in Buenos Aires and civil war in Chicago when the meat plants were closed by the government and the farm-implement factories discharged their workers. A catastrophe which took over a hundred thousand lives occurred in Albany from the first introduction of the Mamlock-foods. The story behind this crime which almost discredited the synthetic foods in U.S.A. was later revealed by a fact finding committee of the Washington Senate as follows:

Between the Second and the Third World War the women-groups had become the dominant political powers in America. Judging that it had always been men who had hurled the world into wars and calamities, the women-groups fought for the establishment of a Matriarchy, first for America, later as a world-government. Hardened, disillusioned, cynical as they had become in the war of the atom bombs, the women no longer shrank from any means to win control over the government. When Alice Kyteler became production-czar for Mamlock foods the women immediately seized upon the tremendous possibilities of power to be gained if Alice Kyteler could be induced to make this food production a female monopoly.

Approached by certain leaders who promised her that the women's vote would elect her President of the U. S. A. if only she would withhold her unique scientific know how from her male colleagues, the beautiful young woman refused. The Mamlock-foods she held

belonged to all the world; regardless of her political ambitions; on this point she would not compromise.

The inevitable result of this conscientious objection was of course that the disgusted female politicians defeated her on her first step up the ladder—when she ran for Governor of New York.

IT WAS shortly thereafter that the mass-poisonings occurred in Albany. Sudden seizures, gradual paralysis ending in death within a few weeks of the first government-issue of the Mamlock-foods. Washington burned the wires, all distribution was halted, Mamlock himself hastily summoned from his Edinburgh redoubt.

To his own utter amazement he discovered that the epidemic was not due to negligence, but that it had been planned. Formulae which left certain protein-bodies in a poisonous stage of development were traced to Alice Kyteler herself. The F. B. I. seized her in an Albany hotel room where she had shut herself in since election day in a state of morose dejection. She refused to speak at first, then under scopolamine injections and confronted with her old teacher, Mamlock, the high strung woman broke down to hysterical confession:

"Yes I've done it. Intentionally I have done it. So what? I'm not even sorry for it. Serves them right, those flint hearted old bitches. They and their kids now writhe in agony. Why did they let me down? I wish I could liquidate all of them; they're not fit to be alive; the world must be purified through death . . ."

The doctors found her sane; Alice Kyteler, in whom there were united genius and beauty as in hardly any woman in history, was condemned to be hanged.

From now on all the stages of synthetic food production and distribution were government controlled and closely guarded. The Washington Senate felt—as did the Scientist-Senates everywhere—that these were affairs of state not to be entrusted to individuals and private enterprise.

Army and militia were called upon to maintain law and order as the first mass-distributions of the Mamlock-foods began.

The Department of Mass-Psychology however was by no means adverse to emotional safety-valves; human nature had to take its course. No resistance was offered when the hungry city-masses took to plundering the government warehouses where reserves of the old organic foods were stored. No barriers were erected against the farmers as they marched into the cities to demand that slaughter houses be reopened and production of farm-implements be resumed.

Smilingly the policemen looked on as crazed, greedy crowds broke the doors of the granaries, ripped open the bags of white flour, spilled most of it, stuffed their pockets, filled their hats, poured into their shirts, carted it away in baby buggies. Good naturally were the furious farmers motioned on by soldiers who lined every road: "Go right ahead, right to the City Hall; you'll get full information there; satisfaction guaranteed. It's all over; no more hunger; from now on you can come to the city for food. Move on, move on . . ."

At first the people refused to believe the good news; they had to be convinced by their own eyes, by touch of hand, by taste, by smell. Elaborate preparations had been made for that; all the foodstores stood open, they were jam-packed with Mamlock-foods in inexhaustible quantities, and all of it was free.

Mass production had developed scores of synthetic varieties; the old familiar packagings of the organic foods had been adopted; the fats, the meats, the canned goods, the chocolates, the ice creams, they looked strikingly similar to "good old times"; in color, texture, taste they were almost identical with the natural products.

RIIGHT in the stores and in the streets the excited masses sampled the free offerings. Simultaneously almost all over America, Russia, Western Europe, India, China, Australia, South Africa the people held the biggest public banquet in man's history. Staid Britishers smiled, Frenchmen kissed, Russians danced, the German's eyes popped out, American kids built fires in the streets to heat the cans, to roast the pink, the all too perfect looking steaks. Laughing with hysterical joy the people shouted: "They have invented artificial cattle, they make synthetic pigs! Schlaraffia is here; now it snows flour, it rains angel-cake; the Manna falls from heaven; no, it's grown from electricity. Throw away all rationing cards; now it's meat three times a day; six times if you wanna, all you can hold!"

By way of vengeance for the hunger of the past the mob burned down some warehouses, smashed offices of the rationing boards. This had been foreseen by the psychologists; the fire brigades stood ready, that was all; the masses were almost invited to do away with the symbols of past scarcity. The vast sheds of factories for farm machinery stood empty, these had been the first to be reconstructed after the atom-war before the Mamlock-foods were invented. Now the workers gathered uneasily at the gates; yes it was true there was food now in abundance, yet it seemed queer and threatening somehow that those

tractors on the assembly lines, those reapers and cultivators should not be needed any more, never, nowhere in the whole wide world.

The spiritual crisis was deepest, of course, on the farm. At feeding time and milking time the old men shook their heads:

"What is the country coming to? But yesterday we were asked to feed the world and now we can feed the milk to calves and hogs. And why feed it to the calves and hogs? Nobody wants them any more." From force of habit they kept going with the plow, the hoe, only to lean on the handle after a while and to ponder over the futility:

"Why am I doing this? It makes no sense. All they need now will be a few luxury foods; truck gardening, chicken, eggs. It's strange there is no future in the tall corn that grows, they just burn it up in the big cities."

There were farmer-revolts in some parts of the world; in Canada, in the Ukraine, in the Middle-West. There were attempts to sabotage the heavily guarded Mamlock factories, to blow up the freight trains which came in a steady stream from there. There even were so-called "hunger-marches" to the seats of governments. But Washington and all the other capitals could laugh that off:

"A hunger-march? Don't be silly. There's all the food you want. Come to the cities for your food; stay there, work on the reconstruction jobs, the fields don't need you any more, the field of promise lies in chemistry."

These were the invisible dust-storms which denuded the countryside. Like the defeated share-croppers of Oklahoma in the early thirties, farmers gathered, disputed, deliberated, read the government propaganda posters which promised good jobs and foods. Then, in a sudden, desperate resolve they

would pack up their cars and jalopies, drive the chicks and the pigs into the woods, and move to the cities. Only this time it was not nature which defeated them. This time the migrations were world wide, on a vast, an unprecedented scale. The deserted houses sagged; the paint peeled from their clapboards; from mouldering hay in the barn loft the seeds grew through the shingles of the roofs. The soil rested; the eternal soil which had nourished mankind over thousands of years. The first year the grains still fought a losing battle with the weeds; the second year the scrubs, little trees shot up like an invading army; fox, weasel and wood-chuck built their homes in convenient cellars man had dug for them. The shape of the fields became obliterated; like hedgehogs they now bristled with the new wild life as they returned to wilderness.

CHAPTER V

Science builds the New Babylons, the world is ruled by City-States.

FROM the Second World War there had emerged a trend for city-dispersal because of their vulnerability to bombs. After the Third World War, however, this was again reversed for reasons both technical and psychological. One reason was the invention of Mamlock-foods; it was generally recognized that society had to be organized around these food-production centers. Another reason was that a defense against bombs and rocket-artillery had finally been found. It was essentially the same defense which our globe uses against the missiles from other worlds. The thick coat which we call our atmosphere acts as an aerial armor plate in that it slows down, heats up and explodes the shooting stars which fall on

our world in a persistent rain. Based on this selfsame principle science developed radiation-screens around the cities, tremendous cones of energy measuring up to a hundred miles in diameter and piercing through the stratosphere.

Powered by atomic fission, these invisible screens were capable of disintegrating any missile or flying machine in midair many miles before they reached their targets. It was under the sanctuary of these huge domes of protective radiation that civilization could rebuild again in "Freedom from Fear."

From history the modern sociologists had learned to reckon with the extraordinary persistence with which civilization always rebuilds cities, even if almost totally destroyed, on the original sites. Modern Istanbul grows on a layer of ruins three hundred feet thick, the result of scores of complete destructions throughout the centuries. The Russians, the Poles, the British, the Dutch, all had reconstructed their ruined cities after the Second World War despite the handwriting on the wall of the atom bomb. City dispersal never had become a social success; twenty-first-century sociology now recognized the fact that modern man finds his significance only in the mass, that he cannot bear isolation, that crowding together is as essential to him as it is for termites, bees and other social animals.

On these technical and psychological premises the new Babylons were planned and built. The projects were enormous, not only because from 60 to 80 percent of the built-up areas were levelled from the last war's atom bombs, but because reconstruction had to embody an entirely new technology. In a way the new cities looked antique; gone were the skyscrapers, gone the smoke stacks for they were technically obsolete. Along wide, curving avenues

the flat-roofed "living machines" were built in semi-circles, each one a sun catcher, terraced for greatest exposure to air and light. The "hanging gardens" of the Queen Semiramis were again reality; every roof had its park, playground, swimming pool. A wholly new architecture somewhere resembling Egypt and Assyria had sprung up in the factory districts. With chemistry now paramount the architects had hit up the fanciful idea to engineer the buildings according to the atomic structure of the main products manufactured within. Oil-cracking plants in the shape of the Benzol-ring, uranium factories in windowless cubes arranged in starlike patterns, strange constellations which showed not only the nature of the product but were found the most effective layout for the manufacturing processes themselves.

Too often and too disastrously had communications been destroyed in the century of the contesting states; autarchy now was the order of the day. Since nuclear science had made it possible to transubstantiate the universal raw-materials, earth and rock this could be achieved. The old 20th century specialization disappeared; there were no longer textile cities like Lancaster, steel cities like Pittsburgh and Essen, electronic cities like Schenectady and Siemensstadt. The European continent remained in a limited dependency from the huge water power stations in the Alps and in Scandinavia and many American cities were still supplied with the cheap electricity from 20th century power dams. Generally, however, industry was much more diversified and the new power plants based on atomic fission, small in size as they were, put the giant old turbines and generators to shame in their performance. In the laboratories which had become the very hearts of every industry the vast back

log of inventions postponed by the wars became at last reality. In almost religious adoration the citizens of the new Babylons received the marvels lavished upon them by technology. "Not Heaven, but the Earth" became the popular slogan of the 22nd century.

ALL over the civilized world it was felt that democracy had at last been achieved; pride over the complete mastery of nature swelled the hearts. The old sovereign states still led a shadowy existence, but with the growing might and independence of the new Babylons, these city-states became the real centers of the universe.

Spontaneously new flags and banners were created and were unfurled over the cities of Europe and the Americas, all similar in design.

They showed the metropolis of food-production, the Mamlock centers as stars; science symbolized as a rising sun, atomic power as lightning splitting the rock. So heady was the wine of the new gospel that bands of young fanatics went out from the cities to convert the remnants of the backwoods peoples in the countryside. As their helicopters descended into Bohemian forests, into the wildernesses of New Hampshire where stubborn New Englanders still clung to their stony fields, the missionaries of Progress were often attacked with stones and with pitchforks by the infuriated, the reactionary populace. Then, when words of persuasion would not avail, the young fanatics of technocracy aimed their ray guns at the grazing cattle, at the ridiculously obsolete four-legged horsepower, at the hated haystacks and barns. These semi-savages, they held, had to be forced into their happiness.

Violence of this kind became so widespread, the fanaticism of the young technocrats so irrespressible that in the

Senates the specialists of mass-psychology decided this popular drive should be organized and channelled into more constructive lines.

"We must refrain from using force; but why not follow the example of those old Christian missionaries as from Italy and Ireland they once set out to tame the ferocious tribes on the European continent? As surely as this has become one world in the physical sense, just as certainly we must establish mental and spiritual union amongst all its inhabitants. The underprivileged, the underdeveloped peoples have to be educated to the adoption of technology. How can we think of building space ships and to expand to other planets as long as our own world is divided into the haves and havenots of civilization?"

CHAPTER VI

The Propaganda Drive in Asia and Africa

AFRICA for the Africans," "Asia for the Asiatics," had been the cries of the colored world ever since the Second World War. By the end of the third, the Atom War, due largely to the exhaustion of the belligerents, both these continents had broken the fetters of the West.

All traces of European overlordship had been destroyed in places like Calcutta, Shanghai, Tokyo, Yokohama, Peking, Singapore, Batavia and many others. By and large East Asia, Africa, the Malay-world, the Middle-East had returned with a vengeance to their native cultures; everything "Western" was rejected with such furious intensity that the colored groups had shut themselves off completely. Of what was going on in these large parts of the world, much less was known than a century ago. Terrible famines, civil wars, the

rise of native dictators had been vaguely reported; for all the rest, Africa, the dreamy continent, was as dark as in Stanley's days, while Japan had reverted to the anti-foreignism of Admiral Dewey's time.

This was the world which now again was invaded by the "Commandos" of Western Civilization bent on their mission of enlightenment. This time the white man came not as a destructive tyrant, gun in hand and proffering the whisky bottle as his gift supreme. This time he came to give and not to take. This time he descended from the sky, small groups of enthusiastic, zealous youths who carried no weapons of offense and were led by ethnologists, sociologists, psychologists.

Over the Sahara flew their planes, over the bleak vastnesses of China, into the clearings of remote jungle-villages they descended by parachute.

Wild nomads, head hunters, shy pigmy-tribes, Tartar-horsemen, Amio-villagers were put by their approach into mad flight. That was all right with the young technocrats; they knew it would happen; they also knew just what was going to come.

Calmly they gathered their supplies, built tents, cooked dinner, tucked themselves into their sleeping bags, peacefully, unconcerned, with nobody on guard. What happened to the group which had dropped among the Tuaregs was typical.

ACROSS the moonlit desert shadowy figures crawled from every side; jumped up, hurled their spears into the dark little tent-pyramids. The long, iron points never reached the frail silk. As if they had struck a wall of steel the shafts rebounded in midair, clattered to the ground. To the shocked Tuaregs it seemed as if they could hear the foreign devils giggle in their sleep-

ing bags.

Infuriated, they now aimed their firearms, Mausers and Garands which the Second World War had scattered all over the globe. To make quite sure of the kill they pressed the triggers within a few feet of those dumb enemies who wouldn't stir to defend themselves.

But before they even heard the crack of the explosion, the bullets ricochetting from the dark interior, had pierced a leg here, shattered a shoulder there. Howling with horror and with pain the wounded sank to the ground.

The foreign devils calmly arose; tying the little boxes of the impact reflectors to their breasts they left the tents, let their searchlights play over the little battlefield. They gathered the wounded, the tents became hospitals, first class surgeons took care of them.

After a few experiences like this, local chieftains sent messengers of peace or else one of the convalescents was dispatched to the headquarters of his tribe. What they reported was awe-inspiring, overwhelming news; those foreign devils had not come to plunder, but to give, to deadly attacks they reacted with kindness; above all: they were invulnerable, against them the old weapons were as useless as a peashooter against a hippopotamus.

Arab chieftains, jungle kings, tall warriors, enormously fat queens laden with gold bracelets and ivory came to parley—and were received ceremoniously in their own code by men who fluently spoke in their own tongue.

"What was it that the foreigners wanted?"

"Nothing—nothing at all. What did the natives want themselves?"

"There was an epidemic? The harvest had failed? They needed modern arms? That's easy; be back tomorrow. We're going to take care of that."

The airwaves hummed with messages

to Europe and America; it didn't take 24 hours before huge, imposing air trains appeared over the commando camps; tons and tons of supplies. They carried medical equipment, portable power plants plus expert personnel; health officers, engineers.

Thus the enlightenment centers mushroomed by leaps and bounds. With television they showed the splendors of the new Babylons, showed the endless beaches lined with amusement parks, the lives of the inhabitants as an eternal holiday of merrymaking. They showed the spacious and attractive "Integration Centers" where new immigrants from the underprivileged parts of the world—black, brown and yellow—were indoctrinated, were trained in the uses and the enjoyment of civilization's gadgets and tools.

In prefabricated halls erected in the midst of native strongholds exhibits gleamed; high-powered rifles, sub-machine guns, jet-propelled cars, planes to take ambitious youngsters up into the air for a spin, model houses, beauty parlors to embellish harem dowagers and nose-ringed débutantes. Suave and persuasive men and women, shock troops of the advertising industry operated these exhibits. Trained in customer psychology it was easy for them to evoke within the colored races the irrepressible desire to come close to sources of this wonder world. Decimated as they were by the Third World War the two great empires which had inherited the world and within them the new Babylons eager for their own aggrandizement and fearful of their falling birthrates—they all competed for manpower and the vital influx of fresh blood.

WHEN America was young it had been the call of the steam calliope which drew the crowds from many

miles around when the show boat came around the bend. Now it was modern craft which plied the rivers of Africa, it was from airships hovering over Bedouin camps that the loud speakers of civilization played their spiel:

"Go West, young man, go West; grow up with civilization, see the world."

Hundreds of teams composed of doctors, intelligence testers, linguists, propagandists did their high-efficiency processing jobs as they dispatched shipload after shipload of new immigrants toward the Babylons. Their dragnets scraped the back woods of the world. Old primitive instincts shrank from the lure, but millions of the young generation, in a sort of demonical possession, dissatisfied with their old lives, went North, went West in one of the greatest migrations the world had ever seen.

In the early twenties of the 22nd century it became clear that this vast recruiting drive had resulted in certain unexpected and unfavorable developments. It was weapons which the underdeveloped natives had wanted above all. From the vast surpluses of obsolete weapons, leftovers from the Second World War, this primary desire had been easily and gladly satisfied in the hope thereby to drive an opening wedge for the blessings of civilization into the native's mind. This attempt had failed. The bulk of the Asiatic and African peoples gladly embraced the weapons, showed themselves open minded as far as the manufacture of ammunition went, but they rejected nearly all the rest.

The most progressive tribes, those who took to the opening of mines, to the construction of steel mills, used this technology to become the scourge of their neighbors. From Algiers, Abyssinia, the New Guinea coast, Nigeria, colored dictators sent "punitive expedi-

tions" into the interior. Weaker tribes, those who had no gas masks, no modern arsenals for defense, were ruthlessly exterminated. The same thing happened in the Indies and in parts of China; all the gentler cultures who, like the Balinese, had felt that modern civilization menaced the very roots of their existence, became extinct; killed off not by the whites, but by the fiercer tribes of their own blood, running amok with grenades and tommy guns.

Shortly after the commandos of civilization, the enlightenment squads had reported to headquarters their "mission completed," large parts of Africa and Asia became charnel houses where the disastrous history of Europe repeated itself in a sickening manner, where new empires arose and fell, where "men of mystery," white renegades and black Hitlers lorded it over enslaved, barbarized masses from strongholds built in the old manner of the Maginot and Siegfried lines.

Appalled as they were, the scientists of the World Council did not intervene. Neither Africa nor East Asia were any longer needed as sources for raw materials. Of their most promising man power they had successfully been drained. All that civilization now wanted was its own peaceful development; the thing to do therefore was to establish a *cordon sanitaire* around the city-states and let the foreign barbarians stew in their own juice.

ANOTHER disappointment was the attitude of the new immigrants. Carefully screened as they were and cautiously sluiced from level to level in civilization from the first indoctrination camp through the various upgrading camps to full citizenship under the able direction of sociologists and psychologists, something was missing. Efficient workers for the simple repetitious op-

erations along the assembly lines, capable maids, chauffeurs, delivery helicopter drivers and all that; they were trained easily enough, likewise army and police had their biggest man power pool amongst the new immigrants.

Spiritually, however, the integration lagged behind; even the most advanced scientific methods seemed to be unable to bridge the gap of millenniums in development. The farther their training in civilization advanced, the larger became the percentage of those who couldn't take it. Gadgets and mechanisms they could understand and master, but the principles, the science behind the apparatus, remained to them mysterious as had been the medicine men, the shamans, the demons, the animal gods before whom they had trembled, to whom they had sacrificed not so long ago.

This inferiority complex (which, of course, they carefully camouflaged) expressed itself in lack of enthusiasm, in clannishness, in a show of sullen contempt for all the blessings which they received. Races which had lived on the starvation level for centuries now gorged themselves with the superabundance of the rich, the sweet, the soft, fat Mamlock foods. The temptation to overfeed was irresistible; the well-meant advice of the nutritionists wasn't enough to stop it. Within one generation the mass of the new immigrants became obese, sluggish, with a diminishing output of work for which they saw no necessity. Under the transparent plastic roofs of the streets (all city streets were air conditioned and roofed over by that time) the colored masses drifted, not knowing what to do with themselves, vaguely dissatisfied despite the amusement parks, despite the television news, the "feely-movies," the animated cartoon advertising, the continuous fashion

shows of the department stores. For all the distractions, stimulants, sensual impressions, excitements, lures which pounded upon them tried to seduce them from all sides, something was missing from their lives and they didn't know what it was.

Some took up sports, only to abandon them after a while; to exercise one's muscles seemed slightly ludicrous in a mechanized civilization which strenuously plugged the abolition of all physical effort by labor-saving machinery. Descendants of nomads, cowboys who had come to the cities from the Western plains, rented horses from the livery stables which still existed in the new Babylons for some anachronistic fun. Limply they hung on the back of the animals, tried a little gallop and slid down, disappointed. Horses were obsolete; how silly it was to use a four-hoofed animal for transportation in civilization's heart.

Overstimulation of the senses, overly rich food, lack of purpose in life led to indulgence in sex. Medical care by the state, free obstetrics, social security for illegitimate mothers had made sex a game like other games, had freed the partners from social responsibility. As a result the birthrate of the new immigrants was terrific; sponsored as it was at first by the City-Senates, contraceptives had been withheld. After one generation however the less than perfect integration of the immigrants on one side and their booming progeny on the other side manifested themselves as a menace to the technocrats and scientists.

CHAPTER VII

"Down with the new inventions!" First crisis of Technocracy.

THE menace originated from the old population of city-born metropoli-

tans quite as much as from the new colored immigrants. It also stemmed from certain miscalculations of the man power which could be permanently employed.

Science and technology had underestimated their own powers. Not only did the reconstruction of the cities proceed at a much faster pace than had been anticipated, but the new machines of production were so fully automatic, so prodigious in output, that technological unemployment rapidly increased. Moreover; the new markets which civilization had hoped to gain in Asia and in Africa, had failed to materialize because of the anti-foreignism of the new nationalist movements in those parts of the world. Finally (and that was the most unexpected development of all) the civilization-enthusiasm which had created the rebirth of democracy after the end of the Third World War, began to evaporate amongst the civilized peoples themselves. They suffered, as the psychologists termed it, from an "exhaustion of wishing-power." The marvelous new inventions, the wonderfully streamlined gadgets which filled the "living machines," which were supposed to make life forever more pleasurable, hardly raised a passing interest any longer. No matter what the propagandists did to sell new desires, no matter how they augmented the sensory impacts of advertising to the point of shock; the more civilized the people, the more they reacted with indifference.

This instinctive reversion from progress expressed itself in innumerable ways. Despite the 5700 varieties which had been developed from the Mamlock - foods, luxury - delicatessens began to flourish in the Metropolis which catered to primitive or else degenerate palates in offering oysters, mankind's primeval food, the eggs of fish

called caviar, wild birds like grouse and the gamey-tasting muscles of venison; nourishment from which refined tastes would have shrunk in horror only a generation ago.

From one of the more exclusive suburbs of Boston a citizen-movement was born aimed to abolish the plastic roofs over its streets. They "suffered claustrophobia," this group from old New England stock declared; "wind, snow and rain were God-created and it was wrong for people and unhealthy to live year in, year out with air conditioning.

New York experienced a sudden demand for old-fashioned, log-burning fireplaces. Subconscious nostalgia created a best-seller wave for early American literature. On roof gardens of the wealthy one could sometimes observe strangely pastoral scenes, such as a grazing cow, chewing real hay expensively imported from abroad by plane, expensively milked by real Swiss in leather-shorts because high-priced Park-Avenue pediatricians had recommended "natural" milk for the baby.

In London there was a revival of interest in gardening and hunting in the Scottish moors. In Scandinavia and in Germany Teutonic gloominess took to the reading of old Luther bibles, to marching out into the woods where one sat down to listen to the rustlings of the wind, to feel mysteriously moved, to hum the old, the long forgotten folk songs.

Like children toward the end of a big party are tired of play and just stand around in the corners, sucking their thumbs and beginning to cry from sheer nervous exhaustion, thus the peoples of the New Babylons began to be tired and exhausted with all the new things to play with and there was little which science-propaganda could do to break the sales-resistance of the sophisticated who only wanted to "get away

from it all."

SURE enough, under the leadership of the World Council of Scientists, civilization was enjoying peace, nevertheless a new era of conflict had arisen in civilization's midst; in the home and in the family. Throughout the cruel century of the total wars women had worked, had fought, had suffered just like men. Through this they had quite universally achieved complete equality. This did not see enough, however, for the ambitions of the powerful women-organizations, the clubs, the sisterships, which aimed at nothing less than a worldwide matriarchy. The men had failed in their most elementary mission, the protection of the home; therefore, the women held, it was time for the male to abdicate, and, as the story of Alice Kyteler has already shown, all weapons seemed fair to women in politics just as in love.

Various attempts to seize control had already been made when the organizations rediscovered the greatest weapon in woman's arsenal: the birth-strike. Pregnancy and childbirth not only were painful ordeals which in the end brought women into the bondage of the family and the supporting male, but they also caused losses, casualties, numbering millions in the fight for political dominance and this amongst the most active women throughout their most active years. Shrewd enough to realize that such a strike would never work, the women organizations tried to squeeze the utmost political power out of their monopoly as childbearers.

"Certainly," the matriarchists declared, "we'll never be safe from violation, thanks to the brutality of the male animal and its superior physical strength. Science however lends us means of protection against the consequences of attacks. We intend to

keep the sacrifices with which an unjust nature has burdened our sex as low as possible. Henceforth we ourselves are going to decide amongst our sororities who may and who may not give birth. Amongst the most able bodied women who can be expected to suffer the least harm from pregnancy and birth, we shall select volunteers for maternity. Only with these and by their free consent men may breed henceforth. All indiscriminate breeding must be abolished. The illegitimate offspring of violators should be destroyed."

To a large extent the birth strike was effective. It was popular because it lent support to the mannish modern women's conscious and subconscious urge to be completely free, at all times attractive, unhampered in the pursuits of pleasure and career. Despite the warnings of sociologists and eugenicists. (many of them women themselves, but banned by the sororities as renegades) the birthrate of the white races rapidly declined. Children, those few who were born, were handed over to State institutions for their upbringing. A generation hardened in the fires of war had little love to give; the next generation, steeling itself to keep the pace of technocracy, showed even less interest in the continuation of that outmoded institution, the family.

Thus it was that the home became a divided house with man and wife living at cross purposes and in distrust.

With the vast armies of the new immigrants feeling their oats and threatening to crush the mature old civilization through the mere weight of their mass, both men and women feared the same thing, but that very fear far from uniting the partners, drove them only farther apart.

ONE of the reasons why the women had gone on a birth strike had been

the subconscious dread that if the Senates were to lose control over the masses, they, the women would be exposed to mass-rapings by the populace. By way of overcompensating for this deeply ingrained dread, the women, in their ruthless struggle of power, had sometimes used the rash threat that they themselves would go all out for the complete abolition of the race line and through this alliance with the immigrants would overthrow the rule of their own men.

There was more than a grain of truth behind this extortion; in many European cities, especially in Italy and France, women showed as little restraint in their relations as centuries ago the men had shown in their exploitation of a conquered country.

In mutual fear of betrayal they lived, man and wife. It was much worse than estrangement, it was like having the enemy in one's own house. Many prominent men retired from politics from fear that in their sleep they might betray secrets of state to their hostile spouses. Almost as in the time of the Renaissance there was danger of poison at the family dinner table. Innocence and joy of life were lost in the intolerable tenseness of relationship between the sexes.

The scientists of the Senates worked with might and main to avert a catastrophe. Immigration they had stopped decades ago; now they began to suppress certain new inventions in the field of labor saving machinery in order to maintain law and order through a guaranteed employment - level. Runaway technology was stopped in its tracks; in many instances it had to retrace its steps, had to reconvert to obsolete manufacturing processes to keep technological unemployment from spreading further. In the face of the ever increasing masses this was of little

avail. Non-productive work had to be created artificially. Vast and totally unnecessary bureaucracies swelled the ranks of the administration in the city-states.

In industry things came to such a pass that for every productive worker one timekeeper and one supervisor had to be employed. The six-hour day in a four-day week became general. Washington began, London and Moscow followed suit, in the creation of a Psychological-Labor-Department which soon became the biggest of all the Departments and the sole purpose of which was to create artificial work, to maintain the illusion amongst the masses that there still were uses for them and that they were gainfully employed.

Even so the popular instinct could not be deceived for any length of time. The masses saw through the futility and they despised the unproductivity of their jobs. They realized that their employment was a sham, that it was made possible only through the abolition of automats which could have done the same work better, cheaper and without human hands. They realized that it was merely by the graces of the technocrats and the sociologists that they, the masses lived, that as long as the scientists ruled, their livelihood could be cut off and they be thrown to the scrapheap of unnecessary surplus manpower at any time. Irrational love for the machine, first manifested in the Russian Revolution of 1917 when within a few years the Tractor had become almost the new God of the masses; this machine-adoration of the 20th and the 21st century, turned into mass-hatred in the 22nd century. Together with the apparatus its creators were irrationally hated just as a Cartwright, a James Watt, a Boulton, a Dr. Ure had been hated in the 18th and the beginning 19th century.

"Down with the machines," was the new, the old cry which arose from the civilization centers of the Universe; and what it meant was: "down with the master race, down with the inventors, the psychologists, the technocrats."

CHAPTER VIII

The Sack of Los Angeles and Milan; the rise of the Technocrat Dictatorships.

IMMIGRATION into the cities had been uneven in various parts of the world; it was especially strong on the Mediterranean side of Europe, where the influx came from nearby Africa; it also was unusually strong in California where San Francisco and Los Angeles had recruited from Mexico, all Central America, and from the rapidly increasing Navajo Indians in the Californian hinterlands, New Mexico, Nevada, Arizona. The World Council had long anticipated that the American Pacific coast and Europe's Mediterranean coast would be the most likely trouble spots. The local city Senates had been warned by Washington and London to be on their guard.

Even so, the ease, the utter simplicity with which a Bedouin descendant named Tuwassi (his father had been a camel-driver in the Gobi desert) took Genoa, took only a fortnight later Milan and Marseilles, came as a complete surprise.

Fastworking Tuwassi and his band (he headed the teamsters union of the city-state Genoa) had simply mounted their trucks and their delivery helicopter-vans. Without arousing any suspicion, these vehicles, brightly painted and lettered with the names of legitimate business-firms, had descended into the very hearts of the large factories and power plants. Whereupon

the vans opened, the armed rebels, who had even filched a few rayguns from the local armory, rushed out. It took them less than a minute to cut all power cables in the face of the stunned managers and engineers.

Then, from the radio-station and through leaflets dropped from their planes, they spread Tuwassi's manifesto:

"Fellow immigrants, fellow-Africans, the hour has struck to liquidate the oppressors of the people, down with the Technocrats!"

Whereupon the wild old blood began to sing in the veins of the mob and chaos rolled over the city as an avalanche. It began with a modern version of the rape of Nanking. First of all the laboratories were smashed, their technicians killed in the most fiendish manner (many were thrown alive into the huge acid-vats down in the cellars of their own works). One after another the centers of production, the mile-long, sprawling factories were blown up; only the Mamlock-food plants were spared. Under the pall of smoke and raining ashes and débris, the homes of the master-race were plundered, their women violated many times in the open street.

Survivors were given to bloc-wardens as slaves or else thrown into the brothels. Few were able to flee. From the city arsenal, taken by surprise like all the rest, weapons, including modern ray-throwers were quickly transported to the outskirts in a ring of defense. In the central power station fat, half naked men, black skins and brown glistening with sweat, threw all the switches, grinned as the sparks flew and generators raced themselves to fiery death under infusions of emery-dust.

WHILE London still pondered over measures, Rome and Geneva took

action. However as the punitive expeditions approached Genoa, they ran into the unexpected resistance by modern weapons. Moreover it was found that the insane tamperings of the rebels with the central power-station had caused such a typhoon of whirling electric storms that the tele-disintegrators and the tele-heat throwers of the attackers proved largely ineffective. It was by a stroke of sheer good luck that Tuwassi and with him his whole staff perished by their own hands. They had attempted to operate a very heavy rocket with an atomic warhead. They had aimed it at Rome. There was a heavy overcast of smoke and what the sorcerer-apprentices had overlooked was that the cloud had become strongly ionized by the uncontrolled radiation from the central power plant. At only two hundred feet the atom bomb exploded; it disintegrated a large part of Genoa. That was the end of the insurrection which already had spread, had run amok through the streets of Marseilles and Milan.

Refugee senators, scientists, industrialists who had been able to flee to London where they aimed to establish a temporary "government in exile" were left to cool their heels on the doorsteps of Downing street.

Called into the assembly after a week, they met with an icy reception.

"No government in exile for you," they were bluntly told. "You have mismanaged your affairs. We gave you fair warning. You are unfit for office; you are dismissed. Go, fade away. Now it is too late for the humane measures which we planned. Now we have got to blow Marseilles and Milan to bits to statuate an example; after that our own commissars are going to take charge . . .

Shocked as all civilization was by these events which came to pass on the

eve of 2152, the really stunning blow fell only a few weeks later with the international catastrophe of Los Angeles and the horror scenes which followed its sacking from the prison island of Alcatraz.

Los Angeles had remained for two centuries the center of the World Amusement Industry. The old adage that through its gates passed the most beautiful women of the world now was an undisputed reality. With the relentless demand of the overstimulated masses for ever new faces, new bodies, new voices, new smells and feel emanations, the turnover was terrific. There were, at any time, more than a hundred thousand girls of every color, race, nationality, the cream of femininity employed by the scores and scores of giant studios. The stars which rose from their ranks (mere shooting stars these modern times when jaded appetites so quickly tired of any proffered lips or legs, of any new emotional "vibration") were, nevertheless, the darlings of the world. Even the new dark dictators of the Asiatic and African hinterlands sent fan mail and were able to tell the name of the star from a close-up of her belly.

IT WAS the tremendous popularity of this vast harem wherein every man in the world had the claimstake of a favorite which caused the civilized international world horror when the Indians hurled themselves upon this houri paradise. Emotions built up to a tidal wave for weeks and months after the event when the world wide release was made of the newsreels which daring cameramen had made throughout the chaotic turmoil at the risk of their lives. These newsreels, combined under the title "The Rape of Hollywood," was the most sensational horror movie ever made; it far surpassed such old-time

documentaries as "Atom Bombs Over New York" which had thrilled the spines after the end of the Third World War.

Now one could actually see, hear and feel what it had been like when Beauty met the Beast, when the sacred stone knife of the feathered medicine man cruelly ripped the dove-like breasts. What the agony was like of Beauty tied to the stake and smouldered in slow fire, of Beauty crucified and carried in triumph by the howling mob, of Beauty being collectively tortured in rows on the flat roof of "Atomic Studios, Inc."

And it all was reality, a reality which became even more monstrous with the undescribable, the unmentionable doings which, one week later, took place at Alcatraz.

For it was when, in both Los Angeles and San Francisco, the insurrection had already been drowned in blood, that desperate remnants of the machine smashers and rapists retired into the stronghold of that island penitentiary. With them they had all the mobile tele-weapons and more than five hundred hostages, the most high priced of the surviving Hollywood stars.

The siege of Alcatraz by the Federals lasted 29 days. Never in history was a military event so widely covered, so emotionally over-wrought. The criminals showed no fear for atom bombs; they didn't even bother to disintegrate the planes of the cameramen which almost skimmed the watch towers, the walls and terraced roofs. The reason soon became clear as infuriated television audiences witnessed their darlings spreadeagled all over the roofs, and even heard them whimper over the noise of the plane engines: "water, water"; water which temptingly was placed within inches of the tortured faces yet out of reach of the parched tongues. Knowing that they were lost

anyway, but also knowing that world-conscience would never permit an atom bomb to be dropped on their victims, the bestialized criminals took perverse delight in prolonging the torture, in exhibiting to the eyes of all the world the abyss of their depravity.

The tele-lenses which from Telegraph Hill and from the sea were incessantly aimed at every window of the penitentiary, showed why it was likewise impossible for the attackers to use heat rays or tele-disintegrators to smoke out this Bluebeards' nest. Across the bars of every window, across the grates of every gate some woman was tied who had been and still was the delight of millions who in shocking contrast saw her one moment as a glamorous heroine of fiction and in the next reel reduced to a quivering mass of stark and naked flesh still able to scream hysterically:

"They cannot do that to me, they cannot, they cannot!"

AFTER one week of siege the island's food gave out. Rivadia, a sambo from Haiti and leader of the murderous band, made it openly known over his radio in the first brazen broadcast, recordings of which got world-wide hookups and shook with conflicting emotions all humanity:

"Listen, suckers, ya think ya got us holed. Ya think ya got us starved. But don't you kid yaselves on that. For we got meat; plenty of meat. We got lamb, a whole big herd of it, nicest lamb there ever was; not one mutton in all the five hundred of them. If you wanna starve us we're going to eat lamb. We had a taste of that before; it's swell, better than Mamlock-eats. So you go ahead, suckers, and drop us food, all the food we want, and no monkey business. If you don't, we'll have us lamb for supper tonight. Maybe for a starter

we butcher a little lamb which answers to name of Urania Plutonia. She's said to be worth ten million bucks; know her, by any chance?"

Popular pressure was so overwhelming and cases of cannibalism which had occurred in the Los Angeles revolt were too well documented to leave the issue in any doubt. Food was dropped, of course, on Alcatraz in any demanded quantity. Soon that wasn't enough. Liquor and drugs were next on the list of the murder band. They got these, too; and it was after that that the sickening orgy started which lasted for three more weeks, which took place within the sight and within the hearing of all the world, which was reported scream by scream to the very rattle of death by literally thousands of tele-lenses, reporters, sob sisters, sound recorders, emotion amplifiers, feeler rays.

Savages who but yesterday had worshipped some goddess of the moon, became raving maniacs, human beasts; they had challenged all civilization and civilization, of course, would not accept this wholly intolerable situation lying down. Circumstances beyond civilization's control made the use of modern weapons impossible, but one could still fight the savages with their own savagery, one could revert to the Commando techniques of the Second World War.

THERE was no need to call for volunteers; they were already on the scene, in plane loads they arrived from every city state of the world, soldiers, sailors, famous athletes, champion swimmers, boxers, football players, whole baseball teams and just plain boys with a crush on one or the other of the tortured stars. With flaming eyes and faces white with hatred they clamored for action.

Some of these fighters simply let

themselves drop at night by parachute. Landing on the roofs or in the courts they tried to rush the gates or at least to kill as many of the fiends as possible. Pardon was neither given nor was it expected. A few succeeded even in breaking into the cell blocks where the bulk of the women were herded together over night. Snarling guards, covered by a wall of human flesh let them proceed to a point where the young knight knelt down, trying with trembling hands to unshackle his captured princess. Then they aimed their heat ray guns and the cell suddenly filled with piercing shrieks and the smell of burning flesh. All flares and searchlights from planes, ships and from the shore were cut out since they would merely endanger the lives of the gallant attackers. The primeval, the savage hand-to-hand fighting took place in complete darkness except for the eerie green flames which shot up where a victim disintegrated from under the heat ray guns. None of these individualist fighters ever returned to the mainland; they succeeded in killing and wounding a few of the murderer band, but on the whole the sacrifice of their lives was in vain."

More organized raids took place during the third week of the siege. Groups of expert sappers landed simultaneously from submarines on three, four points and started blasting their way under the walls into the heart of the fortress. Over his portable radio station the drug-crazed Rivadia howled for all the world to hear that for every foot of rock blasted from under his feet, he would cut the same length from one of the limbs of his hostages.

He did it too, and in full daylight on the roofs where the Central American Indians had built a crude altar around which they danced, painted and dressed in feathers they had found amongst the

Hollywood studio supplies. Scores of reporter planes hovered over the horrible mutilation scenes; one even returned with a human hand which a maddened warrior had hurled against his plane and which had caught in the landing gear. It was later identified as having belonged to the 2151 Miss America. The blow by blow reports of the horrible manner in which Rivadia executed his threat broke the attackers' hearts. They had reached the walls; in a desperate gesture they blew them up, and then, without plan or command, rushed the collapsed débris, avengers who had only one thought left: murder.

In the ensuing massacre the Indians were decimated, but by nightfall the observation planes found the bodies of the attackers lined up on the roof, accounted for to the last man.

DURING the last week of the siege most civilized peoples kept their television sets shut off; the pictures and the noises which poured forth from these gleaming, streamlined gadgets were too horrid for even this hardened generation to contemplate. In bars and in clubs it was whispered that Rivadia's radio station still talked, although government censorship now forbade the spreading of the recordings over the networks. It was rumored that he, now completely insane, called himself Hitler. That he had concluded a mystical marriage with the beauteous Urania. That publicly he had consummated that marriage on the altar on the roof. That he had prophesied Urania would give birth to the future dictator of the world. That once more he had dragged her before the microphone where broken she had voiced a pitiful appeal to Washington, to the World Council, to her fans all over the world: "I am no longer the Urania you have known. Nothing is left of me but a tor-

tured soul and quivering flesh which only wants to die. That goes for the others too. In the name of humaneness we ask you: give us mercy death!"

After it had been ascertained that only a very few hostages still were alive all of them mutilated, their condition hopeless, Washington decided that the agony must no longer be prolonged. Evacuation of the still smouldering San Francisco was ordered. This done an atom bomb blasted Alcatraz. Purposely a warhead had been chosen strong enough to blast the accursed rock from the very bottom of the ocean, from the face of the earth. No trace of it remained.

These were the events which led to the momentous World conference at Funchal, Madeira, which spelled the end of progress in the old accepted sense and the end of the new, the 22nd century democracy.

Moscow, always realistic and traditionally putting the brakes on the pursuits of the West, set the new course:

"The growing restiveness of the masses," Takvorian, Moscow's spokesman, declared, "which led to such shocking results as the recent mass relapses into barbarity, showed plainly that civilization had overestimated the adaptability of human nature itself. Irrefutably the policy of the psychologists and sociologists of the 20th and the 21st century had been proved to be erroneous. It had been wrong to throw the city states wide open to masses of primitive immigrants in the hope that these could be fully integrated within a brief generation or so. It had been positively criminal to open up academic careers and to admit into the laboratories emotionally unstable, maladjusted characters, descendants of blow-pipe hunters and desert camel drivers, the kind of scum which would sell their very soul for a bottle of vodka."

Some delegates from London and Washington smiled somewhat ironically but the broad shouldered, the bull headed Takvorian continued unperturbed;

"Oh, yes; I can see the reason for your irony. Quite undeniably we were the first to make the great mistake of picking uneducated sour smelling Mushiks for leadership in industry and the affairs of state. All that was ended by the great Stalin, however, and if you Western hopefuls had profited by our experience, it would have served you well. Civilizations, as all history shows, are invariably the products of small élites; the masses merely serve as the placenta upon which the élites grow. You and we and the members of the City Senates inasmuch as they are scientists, actually constitute an élite, a master race. Go back into the history of our leading families everywhere and you'll discover that talent for science is hereditary, just as in the olden times were the talents of the lower crafts. The carpenter's son became a carpenter not merely by accident, neither is it an accident that our leading scientists almost to a man stem from families with a long cultural and scientific background."

Today we are threatened, all of us. If we permit ourselves to be overrun by the new masses which unfortunately we have created ourselves then this will spell not only doom for our group but the end of our civilization; a terribly wasteful event because then it will take many centuries before a new civilization can reach the level whereupon we now stand."

Heavily the squat man sat down, blew his nose, looked around from under leaden oriental lids; waited . . .

THE debate lasted for hours. Several times Washington's representative, the Hon. Roosevelt Hiroshima McGill, threatened to leave the conference. Lon-

don mediated with its mellowed sagacity as usual; there was much to be said in favor of the Russian viewpoint. Not in its totality, but in its essence the new World policy was laid down after the Moscow pattern:

Defense of the existing civilization at all cost and with every means along the following lines:

Membership in the Senates to be restricted to the circles of the aristocratic, the old, the politically reliable families.

The sciences of physics, chemistry, electronics, medicine to be restricted to members of the élites.

All institutions of higher learning to be closed to descendants of the immigrant class.

State propaganda to reduce the immigrant birthrate.

A moratorium on all new inventions and labor-saving processes for the next twenty years.

Creation of élite guards composed of reliable elements with a monopoly for the carrying of ray weapons and the new Tarn caps.

A purge of the laboratories and scientific institutions to eliminate unreliable elements.

Complete responsibility of the City Senates for the execution of this policy; failure to comply to be punished by loss of independence.

CHAPTER IX

Dictatorship by the Élites, Stagnation, Superstition, the Shamans and the Serpents

THE new dictatorships by the élites, of course, were kept a state secret and they operated in a dense fog of camouflage.

Ambitious young men and women from the immigrant class with high IQs

who had entered the laboratories, who studied at the Universities, were not ejected outright, but they were frustrated to a point when on their own initiative they quit in disgust.

Smilingly the professors would advise blacklisted students to direct their efforts to this or that specialized field (always one in which knowledge had no potential dangers to the state). Putting the backs of their young technicians, who had no inkling that their names stood on the black list, directors of laboratories would set them to the pursuit of projects which led nowhere. In the factories blacklisted engineers were trapped by the management into the making of mistakes which ruined products and machinery; mistakes for which then they were duly fired. Successful surgeons from the immigrant class found themselves brought to trial by some former patient for trumped-up damages in some operation—and were dazed by the discovery that their own colleagues decided against them and that their licenses were being revoked by the state.

The "man in the street" never suspected that dictatorship had been established and that a great purge was going on. Outwardly nothing was changed; the sham parliament of the New Babylons continued to function; sham elections continued to be held; somehow they were always won by the "right" candidates.

Dark rumors went among the masses of mysterious disappearances; complaints were made to the police, always resulting in the promise of "quick action" which actually took place but brought no results. Of the missing men and women the bodies were never found. The new élite guards with their Tarn caps, the latest ray device which rendered them invisible, freely mixed with the thronging crowds. There would

be a split second of slight astonishment in the face of a man or a woman, suspect to the state for dangerous thought, when from behind a Tarn cap was thrown over his head and simultaneously the hypno-hypo-needle pricked his neck. But he would keep on walking, invisible now just as his captor who directed his steps. He never knew that he sat down in a car, never knew he was driven to the exclusive harmless looking country club which served as headquarters for the secret state police; never knew that he was stood against a wall where the disintegrator clamps closed down on him, reduced him to ashes; excellent fertilizer which kept the élite guard's golf course green.

State security, freedom from fear of uprisings in this manner was achieved, but neither the élites nor their states felt secure or happy under the New Order.

The clamp down on all new inventions, the stopping of all progress in technology as ordered from above, cramped the style of the élite scientists themselves. Behind the heavily guarded doors of their laboratories they pondered uneasily whether it would be safe for them to continue with this or that chain of experiments which might potentially be dangerous to the eyes of the World Council.

NERVOUS with frustration, business leaders and industrialists paced their offices, wandered aimlessly through their vast enterprises where the automatic processes just kept rolling on and on without a chance of introducing any improvement.

Out in the streets the motley crowds drifted and slouched with dragging feet; on the greens of the roof gardens and parks they lolled, ugly, distorted with obesity, dim witted, cattle-like. The fat contents of the Mamlock-food

ice creams and fudges and candy bars had been purposely increased of late on orders of the Department of mass-psychology in order to produce a "satisfied cow" state of mind too lazy to think and to build up a physical aversion to strenuous activity; this in the interest of civic peace.

The masses had become soft and effeminate; physical degeneration manifested itself increasingly in freaks; abortions became epidemic in character; so did the births of "mongolian idiot babies" who were quickly taken away from their mothers to State-orphanages where they were being mercy killed. Government propagandists disguised as sectarianist preachers, popular news casters and columnists sponsored by the Department for Popular Enlightenment spread the gospel of the new conservatism, warned darkly against subversive activities, praised the existing conditions as the best of all possible worlds. Pamphlets which the Department of Health distributed free and in quantity made a great point of the great detriment which overindulgence in mental activity would do to the brain cells of the unfortunate victims of this vice.

Apathy like a narcotic slowed down the cities' life; markets kept shrinking for the luxury-goods which failed to stimulate desire; one didn't even want to travel any more; universally life was the same in the big cities everywhere; to the beauties of nature one had become blasé; no forest could match the landscaping of the city-parks; all mountains looked flat and the same from under the airplane wings.

Yet, strange events, unforeseen human perversions made the rulers uneasy and gave sleepless nights to the psychologists. When the cheap tourist-planes brought visitors from Africa and Asia, borderline cases from the

outer fringes of civilization who suddenly had struck it rich and were eager for the stores and amusements of the New Babylons; time and again it occurred that at the sight of the metro-politans these semi-savages burst into laughter:

"So this is civilization's master race? These pot bellies; why don't they put wheels under them? These waddling geese of women; they look different from what the television shows. These flabby muscled weak kneed eunuchs; are they the great ones who rule the world?"

Another disquieting factor was the sporadic outburst of group-infatuations with the wilderness. At a public park or some place of mass amusement, suddenly, out of the blue some youth would jump up and shout:

"This is horrible! All of it! This whole damned life! I cannot stand it any longer! I gotta get out of here! I wanna run away into the wilderness! Who's coming with me?"

Then and before the élite guards could do anything about it, scores of young voices would scream:

"Me, me too, take me along!"

Madly the whole band of young people would then rush out, pile in the nearest helicopter taxis and let themselves be dropped some few hundred miles out in the sticks. To try and stop them by force merely made them desperate, the Senates found. All one could do was to station grangers and small depots of Mamlock-foods at likely spots. Most of the time, however, the would-be young Tarzans ended tragically after a week or so of wild excitement, hunger and fights with the wolves and the bears which again infested the abandoned lands. The New Babylons, in all their splendors and magnificence, began to spill their human contents like leaky barrels.

IN THIS atmosphere of noisily over-droned despair of the masses superstitions flourished. In the beginning the Senates did nothing to impede their spreading because in the first place there was nothing science and the élite guards could do; moreover it was believed that the superstitions would have a diverting and soothing influence upon the populace. Later, when the senates *did* want to take action, the cancer had already grown too deep in people's breasts.

In Europe the revival of the superstitions stemmed part from old memories, part from the gypsies, but there was a new and tremendous influx from Africa. On the American continent it was the old native Indian religions which rapidly gained ground, while by way of Tibet, Siberia, Alaska a wave of Shamanism swept from city to city over the vast land.

From expensive imported Swamis for the rich, all the way down to back yard crystal gazers ten thousands and hundred thousands of soothsayers, necromancers, medicine men, tea readers, spiritualists, voodoo priests, love-potion brewers, black magicians, satanists thronged every big city in Europe and America.

Many used modern techniques; luminous paints, dresses of cold flames, the ray touch, the electronic halo, levitation gadgets by which they floated on air, nuclear emanations to form spirit-hands. In the face of the general gadget tiredness, however, these artificialities had comparatively little effect. The more primitive and savage the cult, the more the people were attracted to it. Aristocratic ladies, members of the ruling families, could be found by the midnight hour in the forbidding caverns of the sewage system or out by the city dump, watching in awed anxiety as some oriental magician with a bone

stuck through his nose and with shrunk-skulls dangling for earrings, slit the throat of the rooster, sprinkled the blood, spilled out the twitching intestines and interpreted them.

The masses of the peoples still had many temples and more elaborate than ever, more resplendent to the eyes and ears than ever. The two thousand year old rites were still being performed but before empty pews and benches.

It was in the exotic tabernacles, around the rustic altars which blossomed out in corners of parking lots and flying fields; it was in tepees, log cabins, decaying old barns all around the outer fringes of the city states that in their deep uneasiness the people gathered, anxious to learn the future; the more so the less they had the energy to shape it by their own hands.

TO THE camps of the Tibetans they went where the little windmills and watermills turned prayer wheels, where from the cow-dung fires the acrid smells of the burned bones wafted and ashes told the future.

The silent Indians, who crouched in the reeds by some brook, they thronged, watching their movements, listening to the soughing of the wind for signs and portents of the things to come.

From the deserts the healers descended into city streets, carrying bundles of herbs and little bags of sands in many colors. As patients gathered they would pour a little of each sand onto a copper plate and blow and from the patterns which resulted make their diagnosis. These men were swamped by customers partly because of the rumors of the mercy deaths reintroduced for hopeless cases in the state hospitals of socialized medicine.

The oracles, however, which won the largest popularity were the Shamans with their ghost and spirit doctrines.

The favorite haunts of these fantastic figures, who in that day and age of chemo-bubble clothes dressed in animal skins, birdskins, tapa, leaves, were the huge distribution centers of Mamlock-foods. At the gates of these sprawling warehouses where freight trains and trucks streamed in and out in endless flows, where the fat, listless stevedores rolled around in their little lift carts and mobile packing machines, where the grocers gathered, housewives and delicatessen men; there they would preach in whispers of the dark secrets of the Mamlock-foods.

"You know, the atmosphere around here is full of ghosts; animal ghosts, plant ghosts, human spirits, too. They come with the Mamlock-foods. They emerge from the vast underground factories where the sun never shines, where they make our food, where they have made it now for over a century.

"And do you know how it's being made, the Mamlock-food? Out of stones and coal and sand and salts; yes, you know that . . . But even the great Mamlock could not quite dispense with organic matter; so down in these deep caverns the stuff we eat is extracted, is broken up, is mixed and forced together synthetically; what do you think . . . ?

"Ah friends, that's where the ghosts come in. For down there in the womb of the earth they have vast basins and they are filled with plants which vegetate, are not really alive and yet not really dead in nourishing solutions, under ultraviolet light. And they have other huge basins and these are filled with animal bodies and parts of animal bodies and these too vegetate in the chemical solutions and are not really dead, yet not alive; and they grow cells, and intestines move and fish hearts beat, ovaries produce eggs.

"And, yes, there parts and bodies of

human beings too in basins and what we eat is being floated in solution through these things; is being pumped from basin to basin so that it absorbs stuff from the vegetable, the animal, the human things before being coagulated and gathered later on . . .

"And do you know, my friends: all these things they keep in the basins, all these things which are neither alive nor dead, are older than any of us. They are as old as the Mamlock-factories, they stem from the time when the Third World War ended; and as you eat the stuff you imbibe a something of a cabbage which should have rotted away all these many many years ago but didn't quite and you are partaking of a dead old chick the heart of which still beats—mind you, it still beats after a century—and you swallow a something of what was perhaps the glands of a man or woman or of a limb and the old, old dead limb of the poor human guinea pig they used in the days when they first made the Mamlock-foods, which still twitches its fingers . . .

SO YOU see, it's more than merely dead things which we eat and drink, it's more than the inorganic stuff of gases, salt and chemo-digested earth matter. It's live things too, but they're not really alive; it's tired old live things, utterly exhausted and still unable to die. It is emasculated, pitiful, tortured things; tortured by the chemists down there who drive them, force them on and on and on like a cruel teamster would lash an old horse on with the whip, a poor panting old horse blind with the pain and ready to drop and yet the whip won't let him . . .

"Yes friends, that's the way things are with us; as we eat all this ghastly, ghostly stuff the half-dead ghosts of the half-dead things, plant ghosts, animal ghosts, human spirits; then enter

into us and thus it is that we become like them: neither dead nor alive. And there are even more terrible things we must reveal to you:

"All of these city-states are crawling with ghosts; the atmosphere is full of them, the markets, the houses, the parks. We shamans, when we utter certain magic words, can see them—and they frighten even us. For they fill the air like smoke; in wisps they float into every door; like Spanish moss they hang from every tree in the parks; like long pale worms they snake along the roofs; from every window we can see them dangling limp. On the skin of our bodies we can feel their touch, moist and clammy; hardly can one breathe so great is their multitude and they terrify us . . .

"They are not only ghosts of humans; they are also ghosts of dogs and cats and birds and rats and mice. They are not only ghosts from one city alone; they are from all the cities and many of them have come a long long way; they have attached themselves to planes; in the rigging of ships they have swum across the oceans; they are all ghosts of men and beasts who have partaken of the Mamlock-foods and they are all seeking—what, my friends?—the relief of death . . .

"For just as the stuff they feed us is neither really alive nor quite dead, so are we neither really alive nor dead. That's why we have lost the capacity to die. Death is a potency, my friends; only what is really alive can really die. Thus it is, because we have lost this potency of death, that we have gained these crawling, creeping, floating things, those unhappy spirits which fill the air like a bee swarm . . .

"Friends, we shamans will let you in on one momentous secret: of all those millions and millions of ghosts and spirits which we have seen and which

besiege all of us, there has been not a single one from Africa; there hasn't been a single one from Eastern Asia; not one from any place on earth where the people still lead natural lives and don't eat Mamlock-foods . . . ”

AT THIS stage the shamans would point threatening fingers into the horrified audiences:

“You and you and you! Have you no mirrors? Have you no eyes to see what you really are. Look at yourselves, look at one another, look at the wrecks you are!”

The people did and they wept; a generation ago a few farseeing individuals had wept in secret over their cities; now, as they saw one another, whole crowds wept over the wastage of their lives in feeble self-pity. Yes, it was only too true; their life span had been shortened, their bodies were frail, their minds morose. At the age of twenty the average person could lift with two fingers whatever was left of the blackened stumps of his teeth painlessly out of the softened gums. Much earlier, usually at the age of 12 or 14 premature sexuality possessed them in a sort of maniacal heat; which left them played out and impotent at twenty five as an average. After twenty obesity bloated them like a parasitic growth. More often than not it was spotty; scraggly necks, thin arms, skinny legs would protrude incongruously from a rump like a pumpkin. With a great many the joints swelled up, turned painful, made the limbs almost immobile. Still others—walking flesh-pyramids who looked like towers of strength—suffered from strange cataleptic attacks, similar to infantile paralysis; these as a rule became permanent invalids at the age of thirty. Even before the shamans came the people had sensed that their physical deterioration

had something to do with the Mamlock-foods, with the inertia, the lack of purpose in their lives. But even with the shamans urging them indirectly to make a change, most of them felt that they couldn't do it, that it was no use, too late. Energy they had never developed; physically they were too far gone, most of them; they could not have digested natural foods had they wanted to, their stomachs were too weak, didn't produce digestive juices in the necessary quantity.

Hence came this effeminate state of copious weepings, the desolation of the soul which drove some men, some women into sudden bursts of confessions, accusations mixed with fairy tales and threats:

“I'm from Brooklyn,” some disfigured girl would shout: “I'm an African. My grandparents came from Uganda. They were big and strong. Then came the magicians and bewitched them. They weakened their hearts and they followed them into the magician's house. There was freedom from hunger and freedom from fear; no lances, no daggers, no bullets, no chains. And oh wasn't that wonderful! But now, look at me, just look at me, my legs, my breasts, my belly. I'm a woman; I'm only twenty; twice had stillborn babes as with most of us. What have I got now? No gun kills me, no hunger kills me, but what have I got? Am I human to look at? I'm uglier than a walrus in the zoo. Makes me sick to look at myself. I don't wanna be that way, I don't wanna live no more; I wanna die! And who's made me that way? I myself 'cause I knew no better. But the scientists, they knew what they did. Tell'ya those are bad men. Those are worse than the kings and the dictators and all those other rulers they tell us about that were before. In the olden times those rulers made wars against

the other fellows. Now they make war against me! And against you and you and you; against all of us and we don't even know what's going on. I wish they had rather made another of the old-style wars. Then at least we'd have a chance to be blown clean away from all this here and the bits of our flesh could rot in the green earth instead of being buried alive in these big hellish plastic-tombs."

MANIACAL outbursts like that would often produce mass-hysteria. The élite guards with the Tarn caps had plenty of dirty work to do and often they were frustrated because the ancient spiritualist magic of the shamans was able to see through the modern radiation screens which lent the élite guards their invisibility to common eyes.

Los Angeles, of course, had been rebuilt from the ashes of the earlier uprisings, but with the strange new spirit of instinctive shrinking away from science and technology which had come over the masses, Hollywood had somehow lost the magic touch of popularity.

The new, or rather the very old amusements, older than the Bachanals of Greece, older than the mocking plays by Aristophanes, spontaneously were reborn in the no man's land between the outer fringes of the New Babylons and the wilderness. Magnetically attracted to the cities' glamour, yet too shy to enter them, gypsy-tribes, Indian-tribes, Africans Melanesians, Philippinos, nomads of many nations squatted where the jurisdiction of the Senates ended, where it was easy for them to flee into the wilderness and yet they could find and live on many things the opulent cities were used to throwing away. Semipermanent camps, primitive oriental villages, had arisen in this manner and the city-masses, from subconscious

nostalgia, from old racial memories, found themselves irresistibly attracted to them.

Corrals had been erected, rustic stages were set in clearings in the woods, and there, night after night by the light of campfires and smoky torches, gypsies would dance and Indians with snakes, and Africans dramatize their sagas, old as the rocks, deeply symbolic, full of paradisical joy and laden with all mankind's nostalgic memories.

There was the play of the lion and the wild dog. The one of the chieftain's daughter who went berry picking and met a young man who was a beat. There was the story of Hiawatha, of Isis and Osiris, of the young Buddha-king who left the splendors of his palace; of the gardener and Lao-Tse. But there were newer plays too: of Tuwassi the camel-driver and how he had smashed all the machines of Marseilles. Of Lenin who would arise out of his tomb in Moscow when enemies would threaten mother Russia again. Of Hitler the Devil, who always wanted the good and always did the bad. Of modern monsters which prowl in the darkness and devour the poor and are invisible . . .

Such were the plays which the metropolitans came to see in stealth and by night. The animal-directness of the dances, the simplicity of meaning in the plays, the mystery of the African drums, the primeval emotions which were stirred in their breasts; all seemed infinitely better to them than the products of Hollywood. In them they found an innocence which they had lost, a glimpse of a forgotten paradise. And as they freely mingled with the dancers and the actors, they drank of the medicine men's herb brews, tried to eat native foods (which they could not bite unless the meat was crushed for them in mortars). Quite a few "went native."

Some became hermits and mystics.

THREE were still other new amusements to be found along the cities' outer fringes, amusements which soon gained the significance of religious rites. There were small groups of women, some of them foreigners, some expatriates of the city states. Quite frankly and unashamedly they called themselves the "serpents" and for their sign they wore snake shaped golden bracelets. They lived in small one-room cabanas, tended gardens, slept on beds of hay and dry leaves. Just like the heterae of antiquity, they were considered sacred by the superstitious. They never sold their bodies; freely they gave themselves to whom they wanted. Merely to meet one of them was a good luck sign; men humbly asked permission to touch their gowns. To be chosen by one of them for what they termed a "flight" was great distinction. Sex took new meaning, was revitalized, regained its myth for them and also for some of those whom they embraced, in the forgotten smells of mankind's oldest beds, in whisperings of the nightwind, in the moist twinklings of the stars seen in the rectangle of the simple wooden door. There were men who never wanted to come back to the earth of city-plaster after some such "flight"; it was from them and their kind that the great anti-city movement of the twenty-second century was born: the "Pioneers."

CHAPTER X

*The Pioneer Movement—The Saint
—The War Against The Pioneer.*

SPONTANEOUS as the Pioneer idea sprang up and simultaneous on many points of the earth; it became a political program and an organization

first in the city-state of Berlin.

This part of the world was a kind of buffer between the Eastern and the Western City-leagues. For all the standardization in government which the World-Council had indeed achieved, the old ideological dividing line between East and West continued to exist to some extent; it ran right through Berlin. While Hamburg and Bremen were firmly within the orbit of London, Dresden and Breslau to the East of Berlin were just as firmly gripped within the Moscow-league. Berlin swayed like a pendulum between these two.

As a capital Berlin had always been a city of immigrants, from the West and from the East; in both the Second and the Third World War it had been nearly completely wiped out with the result that in the reconstruction-periods it had absorbed particularly large masses of rough-and-ready new immigrants. All this was probably the reason why the Mamlock-foods never took so complete a hold over the people as in the other cities and why the old "back-to-nature" instincts manifested themselves earlier than elsewhere and on a larger scale.

It was with grave concern that the Berlin Senate observed the popular revulsion from technocracy, the trend for dispersal beyond the city's radar-cone the drain on its most valuable population-elements. London and Washington were consulted; both sent some of their most able government-propagandists; Berlin was snowed under with all the latest amusement gadgets and Hollywood stars on good will tours. Even so the leaks could not be closed; Berliners continued to spill out into the countryside and to resume such atavist preoccupations as rowing in little boats on their many lakes, fishing and digging vegetable gardens.

This was the psychological situation

in which de la Roche made himself Consul of Berlin. He was a member of the ruling élite, a nuclear physicist of international repute. The tall, sparsely-built man, serious of face and already greying in his early thirties, had made it his lifework to make television ectoplasmatic, to liberate it from the screen to which it was confined, to make whatever television had to show tri-dimensional with the actors actually walking and talking like live persons amongst their audience in the cinema or living room. This work had involved much basic study of phenomena such as the miracles reported of the saints, witchcraft, necromancy, spiritism both ancient and modern; all of which greatly enhanced the mystical tendencies already pronounced in the makeup of his mind. Nevertheless from a purely scientific viewpoint the results of his work had been remarkable; they had aroused the immediate interest of Hollywood which put large funds and laboratories at his disposal. Nicknamed "the saint" in Hollywood, de la Roche was on the scene when the terrible "rape of Hollywood" occurred.

UNHARMED in his person he went through the experience, but it was in a state of deep depression that he returned to his Berlin Senate-seat. For many months he refused to participate in the debates. Frowning, stroking his sparse black beard, drawing doodles on a sheet of paper, he sat through the sessions. When the "New Order" was introduced as a result of the Funchal Conference, he opened his mouth for the first time:

"Whom the Gods want to destroy, they first afflict with blindness."

His fellow-senators looked at him in bland astonishment; there was a minute of silence while everybody waited for further elucidation of the mysteri-

ous remark. But the tight lips of the "Saint" had already shut and remained shut like a trap.

He was much less reticent with the younger generation of his own set, the élite guards who counted him as one of their leaders. Like in other cities the headquarters of the élite guards were a fashionable country club where the lawns, richer perhaps than elsewhere, were fertilized with the ashes of those who had made themselves suspect of "dangerous thoughts" against the state.

Playing his lazy game of golf together with a bunch of young lieutenants, captains, commissars and when his iron stirred a little dust of human bones, the "Saint" would halt in his steps and frown. With his big head bent down, addressing nobody in particular, he would say something like:

"What a fool I am. What fools we are; all of us. Fools like old king Xerxes when he tried to chain the sea and punished the waves with the cat-o-nine-tails. Fools like old Nero when he threw the early Christians to the circus-beasts. This popular movement; we cannot stop it no matter how many people we kill. All this technocracy is lopsided; in the end it will capsize its own civilization-ship. We're fighting on the wrong side; we, the younger generation should join up with the people instead of destroying its very best elements; those who have kept their instincts intact."

That was the manner in which the Saint formed his conspiracy; a conspiracy which led to the famous October-putsch of 2159.

The directors of Berlin's huge Electronics Trust had gathered at their annual meeting at Brandenburg, when suddenly the Saint with a band of armed élite guards appeared in their midst with the brazen, the shocking demand that the tycoons should abdicate

from all their positions, that the power-cables from Scandinavia be cut and the central power-station be blown up immediately.

For a few minutes the Saint listened to the tumultuous shouts of:

"Nein, nein, niemals!"

"Outrageous, strengstens verboten!"

"Get London on the phone!"

Then, slowly, in a gesture half of despair he raised his hand: old fashioned Second World War weapons, Mauser pistols, suddenly seemed to be hanging in the air (the hooded executioners themselves remained invisible). Volleys rang, the 59 magnates of industry dropped dead; some of them shot by their own sons, purposely picked for the task by the "Saint" to test their faith.

RUMORS of the outrage spread like wildfire all over Berlin when the usurper with a few hundred followers occupied the city-hall and called in an extraordinary session of the Senate.

In their momentary confusion many attempted to flee, but found their planes grounded by the ray-barrier which the élite guards had laid down over the city. Intercity communications however had been purposely left intact. After some frantic telephoning amongst each other most senators decided to put up in a show of unperturbed calmness and dignity which seemed the best way to get things under control again. After all de la Roche was a member of the élite himself; nobody knew exactly just what had happened in Brandenburg a few hours ago; the idea that he and the élite guards should seriously turn against their own flesh and blood seemed too impossible to contemplate. The whole thing was hopefully viewed as being in the nature of a youthful prank, a crazy "beer hall putsch." All one had to do was to bring these young

people back to their senses; whereafter they would have ample opportunity to repent themselves of all this nonsense behind prison bars. In the event of any serious emergency, London was certain to intervene anyway.

So then, as if nothing in particular had happened, the senators appeared at the midnight session in the city hall. Everything there had the appearance of normalcy except that the president's seat was already occupied by the Saint who seemed engrossed in some documents and paid no attention whatsoever to the members as in embarrassed silence they came filing in.

When they were all seated the long limbed Saint arose, pushed back his shaggy mane with a nervous hand and spoke, his face averted, as if he feared to face his audience:

"I've taken over the powers of government. The gentlemen of the present Senate are welcome to me. I shall be glad to avail myself of their good services in an advisory capacity. That's all. Are there any remarks?"

He sat down.

"Traitor!" screamed Maria Wachsmann, sole heiress to the big Argus-helicopter-works, a socialite nicknamed "the man-eater" in her set.

Her colleagues hushed her up. From the front row Rogge stood up, dean of the Berlin-university, de la Roche's own old teacher and up to a few moments ago the Senate's president:

"I did not call this session; moreover I perceive that my usual seat in this assembly is already occupied." Ironical laughter ran through the senators' ranks. "But even so, de la Roche, I think we all are grateful for the invitation. And, I may add, for the opportunity to speak, though as a rule we do so on the bequest of an *elected* president." More laughter on the benches; The tenseness of the atmosphere rapid-

ly disappeared. "I'm expecting every moment to be interrupted; perhaps by some quick process of disintegration." Here the benches roared. "But since you, de la Roche, so graciously condescend to listen; and since also my advanced age puts me beyond human fears, I wish to ask you, de la Roche above everything else, this question: What has become of our friends and members, the 59 directors of the Electronics-trust?"

SITTING awkwardly on his high chair, stroking his beard, keeping his face averted, the Saint slowly nodded. He pressed a button. The back wall of the city hall (mobile as in all modern buildings) slid noiselessly aside. The blackness of the night outside was a glare of floodlights; on the concrete of the yard there lay stark and uncovered the men, the women, with the bullet holes.

Rigid as if hewn in stone the senators sat stunned. Only Maria Wachsmann collapsed and started kicking and writhing on the floor in spasms of hysteria. A minute passed and then, in even, normal tones the white haired Rogge, philosophy professor of the stoic school, resumed his talk:

"Ah; I almost thought so. These friends of ours, they had been silent all through the afternoon and evening. It's quite uncommon for men and women of affairs to prolong their silences that long. These friends of ours; how often have we not—you too, de la Roche—sat at their tables, eaten their food, listened to their conversation? How is it, de la Roche, that our friends have become silent so very unexpectedly?"

"These men and women have been shot at my orders early this afternoon." The voice of the Saint was matter of fact, showed no emotion.

As if he were charmed by this an-

swer, Rogge, the old cynic, raised his hands in mock delight:

"A 'most satisfactory statement. That, of course, explains it all. By way of an afterthought it raises the question: what is going to become of us? Are we perhaps scheduled to join our silent friends out there?"

Slowly the Saint shook his head: No. He hadn't thought of that. The gentlemen were free to leave; go anywhere. Or else to stay. Just as they pleased.

"Excellent. So we are still masters of our destiny. But since apparently you have assumed mastery over Berlin's destiny, de la Roche, what do you plan, who is with you, what is all this about?"

"This."

The Saint pressed another button. The floodlights disappeared. Out there for a few seconds stood the night alone; then it was torn by enormous flashes green and white; reverberations of a vast explosion shook the city hall.

The men, the women of the élite, hardened in tyranny, grown callous as to human lives in the great purges, had maintained their stoicism at the sight of their executed friends and relatives. But the shock of witnessing the central power-plant blown up (there wasn't any doubt as to the source of the explosion) broke them down. All lights in the city hall had gone out. From the darkness of the assembly hall there came muttered curses, moanings, screams, scramblings of many feet which tried to rush to the exits.

At that moment from every door élite guards entered the hall; they carried no arms, only candles which had been prepared and which relieved the panic. Silently the guards placed a candle on every desk. The sight was strange; like one of the churches of old looked the city hall and with the flickering lights up in the galleries almost like

one of those forgotten old Christmas trees.

De la Roche had again arisen:

"This is it. This is the kind of life we hold in store for you. We of the Pioneers. If your carcasses tremble in premonition, it is to their advantage. We invite all who feel unprepared to follow us on our course to leave the city. Everybody who wants to join us on the other hand is welcome to our ranks. There will be no further discussion. You can think this proposition over in your own good time."

The assembly dissolved in confusion; hastily the senators boarded their waiting cars. Only one thing was clear: The Saint meant business; and he had the élite guards on his side.

THE dead were given a state-funeral the following day. He who had ordered them shot, he who was now called the "Consul" followed in the cortege; over the graves he briefly declared his hope that executions would never again become necessary under his régime; that it had been precisely because the Pioneers despised a reign of terror that these men and women had to die in order to set a warning example to the ruling class.

Of the older generation of the élite few understood the Consul at that time. Shortly, however, they learned something of his mind when ruthlessly he ruined big business through the confiscation of its properties. Berlin quaked from under the demolition charges collapsing "surplus" factories and laboratories; de la Roche's own amongst them. Only then it was that many of the senatorial families fled, principally to London where they demanded action from Downing street.

They experienced the same kind of a disappointment as their predecessors, the senators from Genoa during the ma-

chine-storm revolts. The elder statesmen of London; worldly-wise, deeply cynical, sceptics as to the permanence of technocracy, concerned only with muddling through one more decade or so without a major revolution, received the clamoring gentlemen from Berlin with calmness.

Berlin, they declared had always been a sort of a test tube for developments on the European continent. The Pioneer-movement they said was politically harmless in that it destroyed with the razing of industries its own *potentiel de guerre*. London, they said, would adopt a wait-and-see policy and it would try to persuade Washington and Moscow to do the same.

During the next few years of Consul de la Roche's régime Berlin lost millions of inhabitants. The Saint kept the Mamlock-food factories going, but he did away with the thousands of luxury-food varieties. The few basic foods to which they were reduced were meant to act as an incentive to agriculture. Malcontents of the old élite spread rumors that the Saint planned mass-starvation of the people; protest meetings were held all over the city; masses of flabby-muscled, pot-bellied, weak-faced proletarians marched toward the city hall, driving their children before them who howled for ice creams and candy bars. From his balcony the Consul drily stated that the Mamlock-factories stood under his protection: "Besides; every one of you has the right to emigrate . . ."

Many migrated to cities in America; but there also was an ever increasing stream of migration into the long deserted hinterland. Like an overturned barrel Berlin spilled out its human contents. Driven by desperation, but with their morale kept up by mystical leaders who preached against the satanism of the machines and Mamlock's devil's

foods, they started to pioneer in the forests which had overgrown the fertile plains between the Elbe and the Oder rivers in the same manner as the pilgrim fathers of America had pioneered centuries ago. In their fight against a merciless nature ten thousands and hundred thousands succumbed. Only the fittest survived; cut off from the outside world in their remote clearings, in their primitive blockhouses, they developed a fierce tribal clannishness; pride in their capacity for doing the roughest kinds of work, of masticating rough foods, of killing bears and wolves with primitive weapons. Eastward they trekked with covered wagons, horse drawn, dragging their cattle behind in search for more land. In the vast wilderness of Pomerania and Mecklenburg and further along the Vistula river and beyond, they met small rudimentary settlements of German, Polish and Ukrainian peasants who plowed with oxen teams and with whom they found themselves of one mind.

Toward the North and the North East they penetrated into the Luneburg Heath and fanned out all along the approaches to Stettin and the huge, the sprawling Hamburg-Bremen city state. The warlike, the forever hungry hordes, couldn't resist the temptation; like the vandals of old they hurled themselves upon the suburbs, plundering food-stores and burning up for good measure some of the hated factories.

IMPRESSED by the complaints from the Stettin and the Hamburg Senates, London finally realized that this pioneer movement was going too far, that it developed into a menace for civilization. Washington had come to the same conclusion some time ago; but even so the old and now somewhat shadowy League of Western Nations was resolved to use peaceful means if

possible.

Some of the ablest diplomat-scientists, Clark-Powell from London, and Mrs. De Witt-Miller from Washington were sent to Berlin to sound out this new consul and if possible to bring him back into the league. The two ambassadors spent weeks of surveying flights over this strange new empire of obsolete wheatfields, archaic cattle pastures and primitive villages. Time and again they descended into the clearings, spoke to the farmers and what they saw and heard left them deeply depressed.

In this strange realm things were not what the foreign correspondents and the television cameramen had pictured them to be. There was this decaying capital with its semi-deserted streets and the tumble-down plastics roofs and ruined factories, to be sure. There were those hopeless masses of dejected unemployed, morose, malcontent, their gorgeous chemo-bubble-clothes paling and ragged, cliff dwelling around the Mamlock-factories; to be sure. However these were not the whole story. In the first place; if the pioneer movement was fomented by the rabble-rouser, de la Roche, and artificially enforced by his cruel tyranny, the people themselves didn't feel that way. There was no doubt as to their will and determination to see this thing through; there was this appalling relapse into barbarism, but no serfdom; the various village-groups and hordes acted on their own initiative; nature took its course, for years they had had no contact with Berlin. But most disquieting to these skilled observers was that they thought they noticed here and there strange fortifications of a new type, faint, feeler-like antennae protruding from tall trees.

It was in this spirit of depressed uncertainty that the ambassadors paid their visit to the Consul who did them the honor to receive them bareheaded,

his hair streaming in the wind, at the steps of the city hall. They had known him of old, from the times he had come to international scientific conventions; they were surprised at the change which had come over the man. From his shoulders floated a long cloak of a forgotten Spanish cut; it was made of rough sheep wool, the same color as his hair which had turned quite grey in those few years. The large black eyes were deeply sunk; with a gleam under the bushy brows that reminded the ambassadors of the campfires they had seen on night flights over the woods.

POLITELY the Saint led the way to his studio; for a moment the man from London, the woman from Washington stood aghast: The walls were covered by huge murals which fairly jumped at the onlooker and throttled him with the stark horrors of the "Rape of Hollywood."

POINTING at these with a sweeping gesture Clark-Powell remarked:

"You don't seem to want to forget these things, de la Roche."

"Why should I?" came the toneless answer. "The way this civilization develops, I might as well keep these as a reminder of what it leads to—eventually."

THÉ warm hearted woman from Washington broke in:

"We have been traveling all over your country de la Roche; there has been no attempt to restrict our movements; we appreciate that. You have vastly expanded the city-limits into the no man's land. We've observed the spiritual driving-force behind your Pioneers; it has been touching to see them; our hearts were moved. Only one thing we do not understand: what is it all for? We couldn't help pity the hardships of these peoples. It is all so unnecessary, so futile. What you're at-

tempting to do, to put back the clock of history, makes no sense."

"Then what does make sense?" de la Roche retorted calmly. "Does Washington make sense, does London? All this 'New Order' with its secret dictatorship of the élites; does that make sense? The New Babylons are ruining themselves and you, their rulers know it."

EAGERLY the woman interrupted:

"But that is precisely why we have adopted dictatorship: to avert this ruin of everything our civilization stands for through the uprisings of the atavist and degenerate elements. We cannot go back to the old way, it means the end of everything."

THE consul frowned:

"There is an end to everything, whether you like it or not. There's death; are you, de Witt-Miller, familiar with the signs of death. Look around in your Washington, in your London, in all of your Babylons anywhere, everywhere and behold—decomposition, decay, death. That's what Death looks like. And you cannot stop it. Why not let them die?"

Clark-Powell took the cue: "Isn't that rather a topsy-turvy view on things, Roche? After all it isn't in our cities that streets lie dark and dead where the people are ragged and the factories are bombed-out shells. It's in your city, Roche; it's through Berlin that Death marches and not through London or Washington. You let your peoples perish by their thousands in the wilderness; we give them abundance, social security. What could be more legitimate than to defend Life against Death?"

IRONICALLY the pale consul smiled:

"Go ahead then. Try to defend yourselves against death. But you cannot do it. Nobody can. If I were to reverse my course, if I would hitch my

wagon to your stars; that wouldn't help you either. Your stars are falling; tied to you they would just drag me down. No; I wouldn't join you; not at any price."

Emotion went into the woman's voice:

"Taking the long view, Roche, you're perhaps right. Of course death stands at the end of everything and we all bear its signs. But we are not in this world to labor for eternity. This is our day and hour; science, technocracy, those are not petty goals to work for. Once you were one of us; you had a scientific goal, you worked for it. Whence this abyss? Are we not, the three of us as we sit here, idealists? Each of us in his own way. Couldn't we do great things if we would only pull together?"

The consul shook his shaggy head:
"De Witt and Clark; you are my guests; I've been glad to see you. I'm grateful for what you've just told me. Our differences unfortunately are basic. Worse even, I can read the plans you're hiding back in your heads. I must warn you; I shall resist."

The two ambassadors had arisen:

"You are mistaken, Roche," Clark-Powell said: "We're not going to war on you. That won't be necessary. You and your pioneers, you're committing suicide. Next spring we'll perhaps send a few observation planes to count the skeletons as they are bleaching on the plains between the Elbe and the Vistula."

The Consul flushed:

"Are you so sure? Have you formed such a low opinion of me that you dare to come and insult me in my own house? Out with you then!"

MINUTES later, up in the sky, en route to London, the man from London and the woman from Washington talked things over between them-

selves:

"He's completely gone; a loon. Did you notice that sort of a toga he wore? He's got a Caesar-complex I'll bet."

In angry denial the woman shook her head:

"Far from it. There's nothing to laugh about that man. He's a menace. We cannot suffer him to exist. He's a black magician, a potential Hitler."

Clark-Powell laughed:

"I don't think he'll get out of hand. He hasn't got the where-with-all to do it. If he holds his peace, we'll hold ours. If not . . ." Clark-Powell's thumb went down.

Back in Berlin the reaction to this interview was a very different one. For the first time in the Pioneer movement's history government airplanes carried large red posters to every little township, village, every clearing in the woods which held a farm:

"Western Civilization plans war on the pioneers! All pioneers must arm themselves!"

"All slackers and objectors are hereby warned to leave our country immediately! The response was overwhelming: For days mile-long processions paraded in front of the Berlin city halls; they carried green banners with golden ears of wheat. Incessantly the echoes of the new national anthem welled up to the consul's balcony:

"Good is a farm, be it ever so small
"To own one cow, and a little
thatched roof
"That's all we want—to hell with
Mamlock-foods."

The moratorium on new inventions clamped down on the city-states by the "New Order" had never been fully effective as far as armaments went. In the utmost secrecy the élites of the city-states had continued to work on new

weapons. Only, with the free exchange of science now prohibited, each state had produced its own models, very diversified, many of them very weird. Berlin had been no exception; starting out from de la Roche's original patents on ectoplasmatic television, Berlin's general staff had developed the "Organism-dispellers," called "brooms" because they swept any given sector clean from every kind of organic life. Far from being destroyed like most of the others, these secret armament-factories had been dispersed and their production multiplied.

In the beginnings of their undeclared war against the pioneers London and Washington relied upon the Berlin-underground. Under the leadership of embittered opponents to the Saint, men like old Rogge, women like Maria Wachsmann, the old élite had fomented revolt amongst the remnants of the industrial proletariat. Under the pretext of patriotic ardor two thousand technicians of the remaining Mamlock-factories formed a free corps; partly in order to paralyze this vital food-supply and party to use the modern arms which they received for the overthrow of the government.

En route to the Hamburg-Bremen-front these traitors occupied the deserted old fortress of Magdeburg, aimed their disintegrators and tele-heaters at Berlin and, confident that the promised supplies and auxiliaries from London would not fail them, boldly demanded unconditional surrender from de la Roche.

THEY had struck too early. London, still hesitant to plunge the world into war, failed to support the insurgents. The consul, infuriated by this stab in the back, had Magdeburg encircled by his hordes; the disintegrators and the tele-heaters were no match

against the latest secret weapon, the "brooms"; within four hours nothing was left of Magdeburg but a giant mushroom cloud of disintegrated matter which slowly drifted out toward the sea.

So lightning-quick, with so much ease came victory, that the intoxicated hordes of warriors were carried by their own momentum right to the ray-defenses at the Hamburg-Bremen city-gates. Used to commando-techniques and aggressive action they did not await command. Playfully almost, just for the hell of it, to see what would happen, they let the "brooms" sweep over the ray-installations. Results were wholly unexpected and highly satisfactory to the semi-savage leaders of the bands: A vast cone of sheet-lightning shot up over the city; tremendous heat created a vacuum strong enough to uproot near the center hundreds of city blocks. A few minutes later, after the stunning effects of the blow had somewhat worn off, the new Vandals, howling with jubilance, proceeded to sack the town.

After this incident which proved that de la Roche had secretly rearmed for war, there was of course no further hesitation. Deeply embittered, sick at heart, depressed with the atavism of the whole thing, the leaders of London and Washington gave the signal for action which would wipe the Pioneers off the face of the earth. They had Moscow's promise to join them at a later stage.

The war against the Pioneers was the most senseless and the most perverted war in history. In it the Allies were in the possession of a secret weapon which made the outcome of the war a foregone conclusion, which also would have permitted them to wage it with only a few thousand expert technicians.

On the eve of the war, however, the World-Council's Department of Mass-psychology came out with one of those ingenious ideas that had made this institution famous. Marked "top-secret" this classic report said in effect as follows:

"Due to circumstances beyond our control the unrest amongst the immigrant-masses has assumed dangerous proportions of late. The masses are raring to go; what they need is a valve for the release of pentup emotions and atavist instincts, preferably through a blood letting on a considerable scale.

"Ever since the sack of Hamburg the war office has been swamped with applications from volunteers. These are the very elements which constitute potential dangers to the state and the New Order; these are the able bodied and able minded specimens which express their malcontent and frustration in the existing order of things through the wish of going to war.

"Why not let them? It might be an excellent idea for us to bow to this popular demand. If they and the Pioneers liquidate one another; so much the better. That would be a 'killing of two birds with one stone' as the old saying goes."

The War Department immediately seized upon the idea. In the old Second World War pattern recruiting stations were established everywhere, only this time without any discrimination as to sex and color. Smilingly the members of the ruling élite watched the eagerness with which they drilled in their camps, their spirits fired by radio and press which loudly praised their patriotism and called them "saviours of our civilization." Brandishing obsolete weapons of the Second and Third World War type, the volunteers proudly paraded before high-ranking élite guard generals who cautiously

coughed into their hands so as not to laugh outright at the sight.

This "B-Army" as it was called in the secret files, was in due course shipped to the European continent to man what radio-commentators termed "the ramparts we guard," the "West-front" and the "Eastfront"; one line along the Elbe, the other along the Dnepr river.

THETHE simultaneous offensives started by the B-Armies to squeeze the Pioneers in its pincers, were of the Second World War type in movement and First World War type in the crudity with which the opponents attempted to bleed each other white. In the West useless Berlin was defended with tremendous blood sacrifice under the 1917 slogan "They shall not pass" under which a million soldiers had once fallen for Verdun. By and large the Pioneers held the Elbe line and also the Weser-Elbe line between Bremen and Hamburg which cut across the Luneburg Heath.

Things were different on the Eastern Front. Where the Pioneers were thinly dispersed over bleak plains of what once had been Poland and the Ukraine, spearheads of the B-Army broke through the spotty defenses as once did the Russians in 1943 and '44. The snorting, clanking old tank monsters salvaged from the arsenals steamrollered through the vastnesses of pine and birch, fired into the clearings, crushed the little blockhouses, strafed the settlers in their horse carts as they galloped away in mad, confused flight. The soldiers laughed: This was no serious war; t'was almost like one of those old western comics Hollywood used to produce wherein the hero chased the wild Indians in a helicopter plane.

They reached the Vistula, crossed it without trouble on the Bailey-bridges

they had lugged along. But as the armored spearheads formed again they suddenly ran into traps of de la Roche's "brooms" cleverly set at the most likely crossing-points. Like balls of fire, white hot in a split-second, the tanks kept rolling for a few more yards till the exploding ammunitions scattered them into the burning forests.

This ended the B-Armies' offensive for that year. Along the Elbe and the Vistula lines its soldiers spent a miserable, frigid winter in block houses and dugouts. Unused as were the volunteers to physical hardships, kept purposely short in rations and supplies as they were by their élite-guard headquarters, ten thousands of them succumbed in the wildernesses, cursing the radio commentators in their comfortable armchairs in Washington and London offices who charged the B-Armies with inefficiency and cowardice.

Meanwhile London and Washington, now joined by Moscow too, prepared for the great spring-offensive which was to end the war. Huge caterpillar trench diggers tore up the earth from the North Sea to the Danube in the West; from the Baltic to the Carpathian mountains in the East behind the deadlocked fighting fronts. Pipe layers followed the trench digging machines; only what they unrolled and laid into the earth was not a pipe but a continuous strip of lead, three feet in diameter. Along these, on the enemy side of the trenches, a harmless looking three-inch copper pipe was laid, the secret weapon which could make all relapses into agricultural barbarity absolutely and forever impossible: the "Fire-Plow."

IN APRIL, 2159, just at plowing-time it began to move. In front of the entrenched copper pipes all along the hundreds of miles through which they

stretched, the snow drenched earth began to boil, to bubble, to smoke, to burst into reddish and sulphuric flames. Within one minute two strips of smouldering fires blazed along the Elbe and the Vistula lines. Through the river bottoms the chain reaction of atomic fissure kept marching on; the waters steamed; millions of fishes jumped in desperate leaps and fell back dead with upturned bellies drifting in the boil.

On the far side the reeds became alive with the anxious calls and the wing beatings of terrified waterfowls. Then the reeds turned into willow wisps of pale flames and the Fire-Plow went marching on, cracking the topsoil three feet deep, melting sand and stones to glass, burning to ashes all organic matter on and below the earth. Majestically, easily, inexorable, devouring a six-foot swash of fertile earth in every minute the avenging Molochs of technocracy marched on and on. Horrified command staffs of the B-Armies shouted into their radios for London, Washington and Moscow headquarters:

"Stop it; for heavens sake stop it; you're blasting our own men!"

They found the air jammed with static; no answer came through. To their planes rushed the generals and adjutants; only to find them hopelessly grounded; all engines cut by a ray-barrier. It was not clear whether it had been laid by the enemy or from behind.

The rigid fronts all of a sudden shook with action. Terrified like people who aroused from sleep discover that the house is afire with no escape except by jumping out of the windows, the B-Armies plunged recklessly forward into the one route of escape: toward the enemy.

The murderous chaos which ensued cannot be described. Pell-mell, intricably mixed up with each other,

friend and foe scrambled madly to the rear in hellish whirlpools of screaming, cursing mobs locked in hand to hand battles of annihilation. Behind them, advancing at their smooth, their remorseless six-feet-per-minute gait, the Fire-Plows thrust on.

The Second World War had been fought without atomic power almost to the end. The atom-rockets of the Third World War had come out of the blue, had killed in one fell stroke; what hit them the people never knew. What turned this mass flight into a nightmare incomparable to anything these wars had seen was the fact that all nature participated in it. Small birds in endless swarms fluttered from tree to tree. Scared squirrels raced the branches up and down the trunks; blind bats and screeching owls flew over the heads of the fugitives. The bigger birds, those who flew high like falcons, eagles and wild geese, got into the ray-screen and came tumbling down, millions of them with their feathers singed. Stampeding deer and cattle tore into the dense masses of the fleeing, trampling them down, thrusting their horns into human flesh, entangling themselves into the obsolete barbed wire defenses along the roads, piling into the covered wagons themselves where the women and children screamed. The very ground which the fugitives trod with fleeting feet was alive with crawling, hopping, writhing things; mice rushing in waves with the shrill whistle of their fears, zigzagging rabbits and hares, crazed foxes which jumped at the throat of anything which got into their way. Mothers who in utter exhaustion had sunk by the roadside for a few minutes of sleep; awakening found rats gnawing at their baby's face.

JUST as all nature ran berserk in agony, so did man. Mass insanity pos-

sessed the hordes, madness which lashed out against friend and foe, live things and dead; against the tree stump in the path of flight as well as against its own flesh and blood.

By May Day the Fire-Plow of the East had crossed the Vistula; behind it was a three hundred mile wide swath of scorched earth, a blackened, glassy desert under a pall of smoke. The Fire-Plow from the West had crossed the Oder, was advancing toward the chains of lakes in Mecklenburg; Berlin lay far behind, a low plateau, stretching for many miles, the lava of its blown-out stones perfectly uniform and smooth. The corridor between the eastern and the western Fire-Plows had narrowed to a hundred miles; of the B-Armies in this sector not a man was alive by that time; the massacre of their remnants by the berserk Pioneers had been complete. There had been no attempt of evacuation. Armchair strategists in London and Washington commented in horrified tones on the ineptitude of the B-Armies' generals who had walked right into a giant trap of the enemy; court-martial was demanded; a little later the infuriated public was informed that unfortunately the incriminated officers were already dead.

Almost from the start of the offensive the nature of Fire-Plows had been clear to de la Roche as it was to every other nuclear physicist. To improvize defenses, to lay a deep barrier of chain-reaction-stopping lead, was utterly impossible. De-industrialized as it was, Berlin had nothing like the hundred thousands, the millions of tons which would have been needed for the task; neither had it the transport of the trench digging machines. But there were lead mines in the realm of the Consul's sprawling state; the most important ones in Styria, formerly part of the defunct Austrian Republic. There

was a hope, even if a faint one, that the lead veins in the Styria-mountains might form a protective screen. Low flying planes dropped couriers, underground telephones carried the consul's message to horde-commanders in the field:

"Pioneers! We have lost everything except our faith. I herewith order general retreat toward the Southeast. My headquarters will be Eisenerz, Styria. This is the new, the flame-proof Pioneer-redoubt. Save as much of the heavy "broom" artillery as possible. Remember: faith moves mountains. In body we may die, in spirit we are immortal."

The great Spring offensive was ended; the Fire-Plows from the East and from the West had met; leaping against one another the flames had finally annihilated themselves, the chain-reactions halted because the end of the chain had been reached. The menace to civilization was ended; nothing was left but mopping-up operations against some insignificant mountain in Styria which mysteriously had withstood the onslaught of the Fire-Plows. A mere handful of the rebels had found refuge there; their annihilation was a matter of days.

While Washington, London and Moscow went agog over the triumphant Bulletins and already celebrated final victory, their armies of technicians proceeded cautiously along the Danube and the other approaches to Eisenerz. With their transport hampered by the self-created desert into which all the rivers now overflowed, it took them weeks to get their heavy ray-artillery into position.

NOT many words are needed to bring the story of the Pioneer war to its inevitable end:

All in all the great rebel had hardly

a battalion left. In foray after foray this handful smashed itself against the overwhelming forces of technocracy. Invisible through their Tarn caps except to Radar—which they tried to avoid by creeping on the ground—they sometimes succeeded in smashing whole parks of the machines which were gathered against them. In every attack however they too were whittled down. In a last break-through attempt de la Roche's "brooms" were caught in a crossfire by tele-heaters; a glancing beam disintegrated the consul's right arm and tore his Tarn cap away. Visible to all eyes the whitehaired bleeding man stood swaying on the blackened field.

Considering the terrible state of the human mind at that particular period of history it won't surprise the reader to learn that the technicians of civilization showed no magnanimity:

"He's got it hot, now let him have it cold!" shouted the captain of E-Battery. Grinning technicians aimed the Hypno-Icer-beam; a second later the lonely figure in the field was white; hoary with frost, the cold penetrating toward the heart, the brain wide awake and pounding.

With a supreme effort the stricken consul managed to lower his eyes trying to locate the burning, howling pain in his right shoulder. All he could see was his left hand, stopped by the freeze in the middle of its move toward the shoulder. Unnaturally spread out the fingers stood; white frozen little sticks. His view got blurred; upwellings of tears had formed thin sheets of ice across the pupils. He thought of his wife and his children; the three of them had committed suicide back in the lead mine of Eisenerz only thirty minutes ago. A television cameraman from Vienna who had parachuted down under a flag of truce had filmed the event. Roche dis-

tinctly remembered that cameraman as he stood there, grinding away at the dead bodies of his two sweet daughters, Susanna and Annemarie. He wondered now what had kept him from shooting the fellow on the spot. He also wondered what would become of the film. Would it be shown in London and Washington?

He felt his pulses slowing; the unbearable pain subsided; this was the end, thank God.

"Forward march!" With needles of ice the command cut into his brain. He didn't know it came from the captain of E-Battery and was sent over the hypno-icer sonde. All he knew was that he had to obey. Only the hipjoints still did work in his ram-rod stiff legs. Stumbling, he did a few steps. "About face; forward march," came a new command. Again he obeyed. This time it was more difficult; the turnabout made him dizzy. But he marched.

Roaring with laughter the technicians of E-Battery followed the fumbling, the staggering, the robot-like movements of the freezing man on the smoking, blackened field. It was great fun as long as it lasted; almost ten minutes until the white figure finally crashed and was dead.

CHAPTER XI

The Despair of the Elites—the Disestablishment Doctrine; Moscow Has a Plan

SPONSORED by the Department of Mass Psychology, a propaganda thriller was produced in Hollywood, mainly from documentaries. There was, as so often happens, a last minute change; for the sake of favorable associations which it might evoke, "Triumphant Civilization" was changed into the historical title of "The Beast of

Berlin." All over civilization it was shown; for the benefit of the savage dictators, chieftains, kings who ruled it over the badlands of the world outside the city states, it was repeatedly beamed into their television sets as a warning example.

Berlin it showed, the proud, the happy Berlin, thronging with masses, humming with industry before the putsch of the Beast. Then the sacrilegious demolition of the Central Power Station; explosions wandering all over the city and the resulting misery. Kids clamoring for Mamlock ice creams, disconsolate women trying to put patches on their tattered chemo-bubble clothes. The mass hegira into the wilderness. The hardships of the desperate pioneers. The appalling sight of women digging vegetable patches. A lonely cabin in a blizzard with wolves howling around. The privations of the covered wagon treks . . .

And' then the moving scenes of "hands across the sea," the loving kindness, the patience, the charity with which the ambassadors of civilization pleaded with the Beast. The arrogant rejection of their outstretched hands . . .

The war itself; how the brave B-Army were lured into the traps set by the Beast and were annihilated by its cowardly secret weapon, the "brooms." Then the avenging angels with the fiery swords, the Fire Plows and how they wandered over the land.

"Punishment to fit the crime" showed the end of the Beast. The usurper's snarling defiance when he was cornered in Styria. His wife and daughters kneeling in the lead mine, thrusting daggers into their own intestines, drawing the blades across in the savage Jap manner of suicide, while the Beast looked on, without a muscle moving in its face. And then the final unmasking:

the shocking revelation of character as shorn from its Tarnkap, the Beast goose-stepped into death . . .

The last scenes showed the "battle-field" as endless it stretched under the wings of planes, scorched earth like a frozen ocean; as if it had been strewn with billions of broken bottles the molten sands reflected the sunbeams. In closeups reporters and newsreel cameramen were seen as joking and laughing they tried with old fashioned pick-axes and shovels to "dig a worm." Hardly a pebble they broke from the lava mass. The long, the benevolent face of a prominent biologist appeared in the end. In measured tones, with a trace even of compassion in his voice, he said:

"For many generations to come no crop, no trees, not a single blade of grass will ever grow from this soil. Let those who still refuse to see the Light take warning: revolt against technocracy is suicide."

"THE Beast of Berlin" was the most "super-cyclonic-emotion-twister" (to use modern television language) since the "Rape of Hollywood." It didn't take a month before the secret police branch of the élite guards reported wide spread conspiracies for emigration into the wilderness amongst the descendants of the immigrants. The infamous name of "Roche" was reported to be on everybody's lips; worse even, he was referred to as "the Saint" among the malcontents. Exodus by tool and provisions-laden planes were said to have already started: From Philadelphia into the Pennsylvania wildernesses, from New York into New Hampshire, from Ottawa to Alaska, from Liverpool into deserted Scotland and Ireland. Long distance planes had even carried hundreds of fourth and fifth generation metropolitans back to

parts of Africa and Asia whence their ancestors had come once upon a time; all airlines in that direction were booked solid for months in advance. Strangely enough, however, the sub-arctic and sub-antarctic zones seemed to be the strongest magnets to attract the emigrants. It was as if the more civilized the peoples, the stronger their tendency to commit suicide. Deliberately they burned their ships upon arrival in the wilderness. Deliberately they sought out its native born savage inhabitants who sometimes killed the newcomers, but sometimes also welcomed in them "lost tribes" not yet forgotten by the racial memories. Hostile the wilderness, inexorable its ransoms for survival, countless the number of those whose bones bleached along treks, who froze in miserable huts, drowned in turbulent rivers, lost their bearings in the woods, were smashed by timber they didn't know how to cut, succumbed to illness without medical aid. And still they kept coming, irresistibly drawn like migrant birds. Secret societies put them on the road; underground railways spirited them away; the movement resembled the "children's crusade" of the 13th century; it was spontaneous, inspired, irresistible and the name of "the Saint" was on the migrant's lips. Marching, they sang the old Pioneer song:

"Good is a farm, be it ever so small
"To own one cow and a little thatched
 roof
"That's all we want—to hell with
 Mamlock-foods."

This rapid deterioration of citizen morale forced the hands of the ruling élites. In many cities the secret dictatorship became an open tyranny. Under the pretext that the issue of Mamlock-foods rationing cards made

this necessary, whole populations were fingerprinted. Exit-visas were required for travel, all traffic as tightly controlled as in the Second World War. The élite guards, heretofore camouflaged, came out into the open. Electronic thought control devices were installed at centers of thought communication, factories, public squares, theaters, places of worship, transportation systems, telephone exchanges. With the wavelength of every brain—unique, never duplicated just as a fingerprint—now registered with the State, it was possible to trace offenders. The carriers of dangerous thought, however, had become so numerous; worse even, amongst them there were so many members of the élite themselves, that to liquidate them all would have meant the end of everything. The need for concerted effort became paramount; in a consensus that "united we stand, divided we fall" the great leader conference of 2163 was held in Moscow.

In a spirit of profound discouragement, deepest pessimism bordering on the fatalism of despair, it was begun. On their flights across continents the delegates had witnessed the state of affairs in other cities; in their hotels they had met with fellow-delegates. The pattern was near universal; an ailing civilization, vitality at a low ebb, stagnation everywhere.

Clark-Powell, consul of London now, the long faced greying man with the sad eyes of a hound, was the first to voice what was on nearly everybody's mind:

"We've got to face the fact that civilization is rapidly losing its appeal. There exists amongst us a worldwide exhaustion of wishing power; in our society the suicidal tendencies are gaining the upper hand. We in London have made the experience that the means of terror play directly into the hands of

those who are "tired of it all". The creation of martyrs is about all we have achieved; these days people seem to enjoy it to be torn by wild beasts out in the wilderness."

The De Witt-Miller woman, his old teammate, of late head of the State Department in Washington, spoke up:

"Remember, Clark, the discussion we had in the plane to London after our interview with the consul of Berlin? You thought he was a loon; I told you he was a menace. Who of us was right?"

"We both were, De Witt; he was a loon; he also was an idealist, that is, a dangerous man, a menace. He's far more dangerous in death than when he was alive. All "Saints" are if I know my history. We shouldn't have killed him. Had we but put him to some war-criminal-trial after the Second World War fashion, he would have cracked. People would just laughed at him. S'pity of it; now it's too late."

Urtubi, the new consul of Buenos Aires, said:

"No use crying over spilt milk, let's face the music: the people say no to the cities, say no to the Mamlock-foods. What are we going to do about it? Should I turn myself into a noble savage and get me a cattle *estancia* and an un-washed Indian to boot? And if I raise my own beef, who's going to chew my bloody steaks with hardly a native tooth left along the La Plata?"

Janicot, consul of Paris, broke in:

"The situation of the Pioneer war and the situation of today are completely reversed. Then we had to create B-Armies in order to throw surplus-population away; now we don't know how to hold them as they are running out on us."

Maria de Palud, delegate of Madrid, impatiently tore at her pearl necklace:

"All right, all right; admittedly we have made mistakes. Everybody does.

But what exactly are our mistakes?"

"Our mistake," said Villum Jensen, ruler of Denmark (all of that little country had become one vast city state) "is a hangover from the 20th century. We have overestimated science; specifically the science of psychology. Mass behaviorism has been contrary to expectations; the appalling mistake of the Beast of Berlin film proves . . ."

Vandamme, red headed Fleming from Brussels, pounded his desk with a huge fist:

"Why rub it in? We know all that. These asses have already gotten their just deserts; they're dead. Let them rest. No matter what their mistakes, we have inherited their fundamental problem: How are we going to get the masses back under control? This is an either-or proposition. If we let nature take its course, then we might just as well commission our real estate agents to buy us retirement villas on the Riviera or in Florida."

Atlanta Mercator from New York puffed at her marijuana cigarette:

"Talk of surrender makes me sick. How did civilization keep on going in the olden times? By having enemies! Think of the last three world wars; each one was a tremendous step forward in technology. How do people react to a state of peace? They get so desperately unhappy, they must needs fight among themselves. We created a state of permanent peace and lo and behold we got the civil wars of Genoa, of Marseilles, of Los Angeles and San Francisco. We got "the Saint" and our citizens are running away from us from sheer boredom. All we need to be revitalized is a new enemy. I'm not suggesting that we should proceed and fight each other all over again as did the cities of Greece and the Renaissance. History does not repeat itself. But then: since we all,

feel a pain in the neck, where is the neck to be decapitated? It is the natural reaction of the human beast to cut off the other fellow's neck if he himself suffers from a headache. As things stand, the masses consider us, their rulers, as the enemy. What we need, therefore, is a diversion. Whom can we reasonably throw to the masses as their enemy? That's the question."

Old Rogge shook his head (London had made him consul of Hamburg after the Berlin catastrophe):

"The whole species has gone to the dogs," muttered the cynical philosopher." What you propose for remedy, Atlanta, sounds about as effective as an emetic in a ruptured appendix case. I recommend the knife; wholesale sterilization of the misfits; then, in one generation . . ."

So deadlocked was the discussion that the American delegation announced its intention of flying home. It was at this point that the Russians took the lead; Zarubin, world famous for his experimental interstellar rocket flights, suggested an intermission of sessions over the week end; in the meantime the hosts would be delighted to take their guests to various points in Siberia and the Ural mountains where they might find some new and interesting things.

Young commissars of the Moscow Ministry of Propaganda, female most of them and very attractive, conducted the distinguished guests on their whirlwind tour. What they saw made their eyes pop out:

Civilization in Siberia, centuries younger than that of the West, was still in its full bloom, was charged with vitality. Over cities like Novogatoff, Argonjarsk, Neonkariski, Aurum, Argentu, Platinum, non-existent a century ago, the air buzzed with helicopters. The huge department stores were over-

flowing with goods and gadgets and thronged with eager peoples who seemed to take the old, the childish delight in them which had once made 19th century England and 20th century America.

Most astounding to the visitors was the friendliness of atmosphere. The commissars, plainly marked by their uniforms as members of the élite, showed no fear in mingling with the masses. In triumph they and the distinguished foreigners were carried through crowds which had plundered acres of hothouses to throw flowers in their path. Strangely uniform looked the ocean of grey, flat faces, all of them smiling at the cars.

"How do you fellows do it?" Clark-Powell asked when the guests were comfortably settled with their vodka glasses in the lounge of the Magenta government hotel.

Alva Wassilev, head of the Moscow Department of Genetics, took a sip:

"All we have done, Clark, was to get one step further than you Westerners."

Clark-Powell looked approvingly at the full-bosomed woman, gorgeous in her purple, deep-cut bubble-dress, translucent, luminous as though made of rubies:

"What do you mean, Alva?"

REMEMBER, we had scientific government and benevolent dictatorship long before you people did. Way back in 1945 Lysenko first shaped the dis-establishment doctrine. Your Western science, old fashioned and conservative as you were then and still are to some degree, clung to the old concepts of heredity; when after the Third World War you let your cities fill up with new immigrants, you figured you had plenty time on hand to let the melting pot work and then, in three, four generations, perhaps, mix up the genes,

achieve racial uniformity. We acted different; we forced our new immigrants to cross breed, we dispersed them, broke down their clannishness. With the results which you now see: you would be hard put to discover the black, the red, the yellow, the white skins in our people's stock; they're all grey, all genes thoroughly mixed, all racial individuality disappeared; clay in the potter's hands; helots by choice. Well, who was right? You with your faith in individualism or we with our liquidation of the conservatism in nature.

"From the very beginning of our scientific government it was clear to us that we would need only a minimum of personalities. Carefully selecting the born leaders before we bred the masses down to uniformity, we have since concentrated on a hybrid leader stock on one side and mass production of robots on the other.

"Next to Lenin and Stalin, Lysenko really is the father of the modern Russia. It was from air and water that he took the inspiration of his theories. He admired their marvelous uniformity, the stability of their particles. Only a fool, he held, could conceive of an air personality, a water personality; yet air and water are the mightiest forces on earth, mightier than any state, eternal in their pliant permanence. Breeding the masses toward this ideal, we have achieved these gratifying ends: liquidation of history, security of the human species, man as a vegetable, wholesome; if properly fed and watered vigorous of growth and perfectly content."

That there had been a purpose behind the Russian-conducted sight-seeing tour the Western delegates had sensed from the beginning. Just what that purpose was, became clear the next day when the planes landed at the old ghost city of Warsaw near the border

of that forbidding desert over which the Fire-Plows had gone. Here the Russians had rounded up for the occasion some of the natives; small groups of survivors from the Pioneer war, fantastic figures, emaciated, wild, like cornered animals they had been lined up against the befitting background of the tumble-down medieval city walls.

Slowly the Western delegates filed past this row of human misery with its penetrating stench of fear and dirt, its upraised hands, its festering sores, its figures crouching in abject submission. The delegates had never seen a sight like that. It froze their faces, drew their lips tight.

"Must we go through all this?" pleaded the De-Witt woman.

ALVA WASSILEV, however, the lusty, stout woman in the purple dress, roared like a Coney Island barker:

"Ah, come on, dear! Come on all of you; they don't bite . . . Ladies and gentlemen! See the biggest little show on earth! Here is history for you; guaranteed to be older than the pyramids; old as the story of Cain and Adam. Everybody's hand raised against everybody, the classic fight for survival in the raw . . .

"This is return-to-nature in all its beauty, this is the real life. What do we civilized people know about life? The answer is nothing! He who never woke up some fine morning with his ten toes froze; he who has never had his skull smashed up by some fellow caveman, how can he know that life is truly beautiful! Civilization stands, like a beggar, before the gates of the old, the original Paradise . . .

"But, ladies and gentlemen, we have brought this paradise to you; be pleased to inspect the exhibits. Here they are, Adam and Eve—and the dear kiddies,

too—straight back from their dinner party. How was the dinner? I dare say you got your fill of wholesome herbs. You know, we feel so honored you have condescended to come to us for a little while, to tell us all about it. Aren't they beautiful, Clark? Aren't you charmed De Witt? You think they're dirty? You think they stink? Ah, my friends, you are so sadly mistaken. They use dirt and stench for camouflage for charity, lest we be blinded by the dazzling beauty of God's pottery. They're so sensitive, the darlings. They know all about the miserable conditions under which we live: imprisoned as we are in our sinful Babylons, uncomfortable as we sit among the junk piles of our gadgets; tortured as we are by three, nay, four, five, six ample meals a day, with all their indigestion as a consequence . . .

"You know, what we could offer wasn't good enough for them. They had needs to return to the bosom of the good earth. How delightful, no telefeelies ever produced such glorious emotions as the mixed rumblings of grass and water in an empty stomach. Not to mention dysentery and the glorious feeling of getting a load of buckshot into one's buttocks. Pardon us, friends, that, even for only a moment, we've torn you away from your paradise; nostalgia we felt for you is our only excuse . . .

"Friends; manifestly the methods of punishment have changed since Biblical times. No doubt as to that we are paying the wages of our sins. But while in the olden days Jehovah sent the angel with the fiery sword, he now descends upon us sinners by raining the milk and the honey of the Mamlock-foods. Mankind didn't mend its ways when he rained hellfire and brimstone; now Jehovah tries it the other way around. Ah, but how all that mannah punishes

me for my sins; it's getting worse and worse; the Wrath of the Lord is going to extremes, I feel . . . ”

“How's that Alva?” somebody asked.

Coyly the lusty woman twinkled:

“Oh, you know, one of my scarlet sins has been, for quite some time, to be alternatively male and female. Fan-ciful isn't it? But then, by way of Jehovah's punishment of course, science has turned the trick . . . ”

Vandamme the red headed Fleming roared with laughter:

“One has heard certain rumors Alva, of what you're doing in your genetics labs; maybe you'll show us the finished product one of these days!”

BACK in Moscow the sessions were resumed in a more hopeful spirit. Contrary to Western customs the Russians had picked for assembly not city halls or palatial state buildings, but the more realistic and intimate scientific atmosphere of the great underground labs where the elevators rushed thirty and forty floors down to the director's auditoriums. Thus it was in the crystallographer's inner sanctum that the delegates met Cyril Steinherz, that man of destiny into whose golden hands the gods had laid the fate of civilization. None of the Westerners had ever seen the man before. Because he answered all invitations to scientific conventions with blunt and insulting refusals, written with what seemed to be a burned-off match, he was nicknamed “Ivan the Terrible”; beyond that he was internationally known as the one man who could grow crystals small enough to be ultramicroscopic and big enough to form a dance hall floor.

In the strange broken rainbow lights of the crystal-studded auditorium he looked like a mixture between gnome and monk. His face was parchment, the black hair, parted in the middle,

fell to the shoulders of his long white cassock. His handshake was a shock; thereafter the guests couldn't help staring with uneasy shivers whenever “the Terrible” gesticulated with those hands. He knew it, he enjoyed it; he made the most of those hands. Years ago his hands had been caught in a stone-crusher, all ten fingers pulped down to the last joint. After the amputation Steinherz had himself golden prostheses made, horrible looking things because they accentuated the deficiency. Not enough with that; in a perverse vanity he had adorned every joint of these golden fingers with big diamond-soli-taires; he even had fingernails made from almond shaped opals and smooth rubies.

For a time he listened in silence to the warming up of the discussion. The Westerners, manifestly were a divided house. Some, men like Urtubi and Vandamme, women like Atlanta Mer-cator showed themselves deeply im-pressed with what they had been shown. Others were torn between conflicting thoughts and emotions; still others like the De Witt woman and Clark-Powell, London's man, appeared shaken, more repulsed than convinced by what they had seen. Alva Wassilev looked tense, had lost a little of her bouncing energy. Everybody felt it in the bones that in this session the conference would either shape a policy or else break up in fail-ure.

AT LAST Steinherz took the word. Fast he spoke, drily and without looking at anybody:

“I think we have already arrived on one important resolution: It's either we, or the others. We here in Russia have attempted to demonstrate to you what it is that we defend. You may say yes or no to the way we've managed our affairs. But that's the way it is. We

don't give up, ever . . . Some two thousand years ago the Huns destroyed civilization. A little later the Vandals sacked Rome. Periodically this went on to the centuries. Remember Hitler . . . We do not like this. We want it ended. Forever . . . That is a big idea. It needs big men—courageous, determined men and women. To be quite frank with you; some of the things I've heard in this assembly strike me as rather chicken hearted and defeatist. Some delegates appear to be on the verge of collaborating with the Pioneers, the serpents and some such atavist pests. Again I say: we do not like that. He who is not for us, is against us; be the ladies and gentlemen pleased to make up their minds and let's go down to the brass tacks . . .

"We could of course let the Fire-Plows run across Africa, parts of Asia and wherever else the human pests infest. We are against that. It would affect the earth climate too much, water supply etc. . . . We think we have a better plan than that. It happens to be much more humane.

"Civilization needs two things: First, a large scale new enterprise worthy of modern technocracy, big enough to catch the imagination of the masses, to galvanize their sagging energies. Second, a vast and secluded concentration camp to which we can ship and confine all the misfits of civilization and the victims of the back-to-nature mania.

"I herewith propose that we melt down the ice cap over Greenland, create a whole new continent of two million square miles, big enough and conveniently located to form the concentration camp for some 100 or 200 million of inferior peoples whom we must remove from our cities' vicinity.

"The de-icing of Greenland is not to be effected in the wasteful manner of throwing millions of atom bombs. Back

here—" (Steinherz's golden fingers tipped against his bulging forehead) "—back here I have a new discovery which permits the direct transformation of volcanic heat into electricity. A matter of a mere nine-hundred billion dollars can add to the world a whole new continent and rid us permanently from all anti-civilization pests.

"You make the decision. But remember this: if we prove ourselves to be men and women of small faith, then we are not only unworthy of being a master race, then we do not only sink to the level of serfs; we are sinking curs and somebody should kick us off the face of the earth."

From the roar of applause the suspended crystals shook; the eerie rainbow lights danced madly over the excited assembly. Fifteen minutes thereafter the ballot had been cast; it showed only two dissenters. Thirty minutes later the treaty was signed.

Within the hour the jetplanes winged the rulers of the world back to their capitals. Even while they were in flight, newspapers and radios shouted the headlines:

Civilization Builds New Continent of 200 Million Population.

CHAPTER XI

The Liberation of Greenland acclaimed. Ultimate Objectives. Technocracy Prepares. The Conscientious Objectors.

A NNOUNCEMENT of the Green-land-project fell upon civilization like a cloudburst upon desert land; the whole earth breathed relief. Moscow's Red Square reverberated from the marching feet of exuberant masses carrying the banners of civilization, the star-and-sun insignia of the city states; small helicopter-lifters upheld enormous pictures of Steinherz over the peo-

ples' heads. There were similar scenes in all the Babylons of the two hemispheres.

And as the desert bursts out into flowers after a single night of rich warm rain, so did science and technology burst into flourishing of new devices and discoveries held back and stunted by the Funchal Conferences inventions-ban. Gone were the gnawing fears and the doubts of the technicians whether this or that pursuit led to forbidden land or contained "dangerous thought" punishable by death and worse. Gone also were the mutual jealousies and suspicions of the Senates. As the factories began to hum again, old industries expanded, new ones were born, even the apathetic masses seemed to sense that civilization had won a new lease on life.

Public enthusiasms built up like a tidal wave as daily and hourly new bulletins revealed the giant scope of the plan. Pessimist suspicions that the whole thing might be nothing but a gigantic hoax, mere propaganda trumped up by the state were soon dispelled when it became clear that first announcements were understatements rather compared to the true scope of the plan.

The liberation of Greenland was to be only the beginning of the whole Arctic's and Antarctic's liberation from the ice.

Nor was that the end; there was the bed of the Gulf Stream to be widened by hundreds of miles through the breaking down of undersea rock barriers. These barrier's hydrologists declared, containing huge rock-salt deposits; enriched with salt the Gulf Stream would quicken its life-giving pulse; subarctic zones would become sub-tropical lands.

That the melting of Polar ice caps would raise ocean levels by hundreds of feet, that it would drown coastal

cities in both hemispheres, had been foreseen by scientists as early as in the 20th century. Safeguards which staggered the imagination had to be taken in order to avoid any such catastrophe. The virtual creation of whole new continents involved, by way of compensation, the digging of giant canals, the biggest one from the East coast of Africa into the Sahara. Flood catching basins of ocean size, such as the Sahara were to take care of the new surplus-waters of the world. In glowing colors the unlimited opportunities were pictured which would ensue, not only from the creation of new continents but also from the breaking up of oversize land masses in the already operating continents.

Finally—and considering that the deicing of Greenland was simultaneously a titanic test for a new source of power: the Steinherz-method for the direct transformation of volcanic heat into electricity—who could know but that this meant a radical revolution in technology comparable only to that brought about by the first crude atom power plants.

In short; civilization set out like a bride on a new honeymoon with science and within the scientific senates there was a hardly to be suppressed exuberance, expectancy of triumph like a century ago when Freedom from Want was first achieved by the Mamlock-foods.

WHAT the scientists felt with pride was what Radio and Press expressed in dynamic headlines like: "Genius of Mankind Unshackled!"; "At Last Man Becomes Like Gods!"; "Creator Comes Out Second-best in Contest With Man."; "Why Be Cold? Steinherz Asks Eskimos"; "California Fears Alaska Competition as Sunbathers' Paradise"; "Greenland Women

Stage Run on Bathing Suits".

The preparations for the liberation of Greenland took almost two years. Along the coasts of America, Russia, Britain, the invasion-fleets were being constructed. Built to withstand the expected tidal waves from sixty to a hundred feet and the tremendous heat of submarine eruptions, the giant freighters were turtle-backed and armor plated with fireproof material. Loath to let billions of tons in waterpower from molten glaciers simply go into the sea, the engineers erected power dams and stations, regardless of the fact that the world already possessed more mechanical power than it could digest. Like Pharaoh, haunted by the dream of the seven lean years, civilization felt that it had to prepare for any eventuality.

The biggest project, however, was the manufacture of the Turmalin-nets. The Turmalins were members of the crystal-species, the mysterious electrical qualities of which had been known as early as in the times of the alchemists; science had used them centuries ago in the first crystal-radio sets. Children of the coarse-grained granite the Turmalin tribes had fused to different ores, had intermarried with different stone families under the enormous pressure of billions of years ago when the continents rocked like ships on the magma ocean in the womb of the earth. Magnesium had sponged up and had become brown Dravites. Acids had penetrated them, gases and steam, and one result was mica. In Brazil they cropped Sapphires; in veins pale, yellow and blue they radiated through the coldest rocks which seal the fiery heart of the earth. Now they were needed in unprecedented quantities.

In the Appalachians, New Hampshire, Arizona, Minas Geraes Brazil, in the Ural-mountains, Dartmoor, Britain, Eastern Canada the pits of enormous

new mines cut deep into the tissue of the universe. Vast refineries crushed and extracted the rock, each one another "Manhattan-project" on a larger scale. In vats bigger than drydocks for battleships the extracts dissolved in acid-lakes. Mysteriously, like life-things, like water-plants, from the bottom of these lakes the crystals grew in long pale chains curving like Mammoth tusks, creeping like vines under the magic touch of Steinherz's formulas.

Great-lake vessels, coastal steamers, mile-long trains, fleets of cargo planes carried them to the new Babylons where they were received in factory-fortresses, square miles of concrete. There the snaking veins of the live crystals had to be straightened, had to be fused, had to be embedded in the new isolating materials, that to be welded to the new, the extraordinary metals which would withstand volcanic heat; had to be woven to nets, a mile long each and one hundred fifty feet wide. A dozen of these was a full load for the new 100,000 ton attack-ships for Greenland's liberation.

IN THE ports of Northern Ireland and Scotland; in the fjords of Norway and the ice free Russian ports there gathered the two great invasion fleets. Over the American flagship, the "Mamlock," Gideon Kyle's flag waved; not an admiral he but the greatest living oceanographer and the first man who had dived to and explored the bottom of the Pacific at 18,000 feet deep. He looked like an amphibious being himself with the freckles on his ruddy skin standing out like waterdrops and the blue veins running down his arms and hairy chest like brooks and with his eyes as blue and limpid as Killarney Lake.

The "Stalin," Russia's flagship carried Uno Hogstrand's red banner; the

silent Finn, dark as an Indian, his face broken and lined with the blizzards of many an Arctic winter had heretofore commanded the ice-breaker flotilla which kept open the North-West passage.

June 4th, 2176, at 9 p.m. the Time-ball fell; simultaneously it fell from the signalmasts of Stavanger, the Faroe Isles, the Firth of Forth, the peaks of the Shetland Isles. On one thousand two hundred ships the sirens roared in their deepest bass; their walls began to tremble as the Atom-turbos whirled themselves to high-pitched drones. Jampacked with material, machines, technicians, scientists, engineers, men and women saluted by swarms of circling planes which showered radio-messages, the ships of Civilization put their noses out into the heaving Atlantic and set their course for Iceland the fog-shrouded, Iceland the stepping-stone to Greenland's liberation.

"We shall succeed"; newspapers and radio carried the fleets' parting message in huge headlines. At that historic moment when millions of people sat down to festive tables clinking glasses with toasts to "Steinherz the Wonderman," a small plane winged into the gathering night, the sinking sun at its back, its course set for Moscow. It carried two people; Clark-Powell the aging who had retired from public life ever since the Moscow conference; de Witt-Miller, the now whitehaired woman, once vice-president of the U.S.A. and now stirred up from her Hudson river retreat by the news that the fleet would be sailing. Theirs had been the two lone dissenting votes at the time of the decisive ballot.

It was after midnight when they landed at the Moscow airport, but there was no night nor was there sleep in Steinherz's underground labs. As they walked endless corridors, to their left

and their right behind the walls of glass they saw the rows of laborants bent over their work in the cones of sun-like neon lights.

Steinherz received them in his inner sanctum; of the three the crystal-wizard in his white cassock was alone unchanged. Impatiently the golden fingers waved the unexpected visitors to a seat:

"What does this mean? Why have you come? What do you want?"

The De Witt woman—she had refused to sit down—gripped him by the shoulders: "Listen Steinherz; up to the last moment we have refused to believe that the plan would actually become a reality. Now the fleet is under way. It's got to be stopped Steinherz, it's got to be stopped and you're the only man who can do it; you could announce that there has been some mistake, some error in your formulas . . ."

"Why?"

"Because it's terrible. The whole thing is; lifting whole continents, draining oceans into deserts, blasting the Poles. It's a satanic thing for Man to do, to try to be as Gods; it's a catastrophe; it means the end. . . ."

STEINHERZ frowned: "De Witt, and you, Clark, strange rumors have been circulating about the two of you. It's been reported that you have joined up with the 'Serpents.' It's been reported that you are secretly digging a garden as Adam did and spinning the wool of sheep as once did Eve. Not that you are any longer important—which probably is the reason why nobody has interfered with you—but am I to understand that you have made common cause with the enemy?"

The grey Clark-Powell said: "If you count your own ancestors and the way they used to live as enemies—yes, Steinherz."

The wizard shrugged his shoulders: "All right then; what is it to us? Nothing. You do not agitate like Roche; you may be permitted to live clothoppers if you wish. But then, don't you see it is for *you* that we are making this new continent?"

The woman laughed bitterly, almost hysterically. "For *us*? Who of us asked you to do it? We do not want your accursed continent. You only use us for pretext, you and the other hypocrites. We would much rather be dead than set a foot upon your satan's work. Better kill us, liquidate us all! You have the power, go right ahead. Only that would save you as little as will the creation of a new continent. Let the earth rest; it is because of Man that the world is going to its doom; generations of robots and mad scientists. . . ."

"You say that to me?" The wizard looked angry.

"Steinherz," Clark interrupted, "we have not come to offend. It is that we have seen the Fire-Plows burn up the land; it is that we have seen the B-Army march to their doom and the pioneers perish and de la Roche's end. It is that I myself put thumbs down on these millions of lives for it was my own report and De Witt's which started it all. Steinherz, there's a curse upon our generation; all we are able to do is to destroy. For the last time: halt this expedition, do something, have the ships called back."

"Enough," Steinherz said icily. The diamonds sparkled on his raised golden hand: "I have no time for weaklings. Go!"

De Witt sobbed:

"Yes, oh yes, let's get out of here. I feel buried as if under a thousand pyramids."

Thus the mission of the conscientious objectors sadly failed.

CHAPTER XII

*They Blow Up the Iceland Volcanoes—
They Charge the Turmalin Nets.*

CUT in the North by the Polar-circle Island which lay below Lat. 65, crossed by the 15th meridian of eastern longitude; shaped like a giant crab its rocky 40,000 square miles rose from the stormy foggy sea. Glaciers covered parts of its South; sulphuric vapors wafted over the isle from the volcanoes Hekla and Skapeterjokul; from Krabla and Leirhukr. Waste was the high plateau of the interior, with frozen lava streams, exploded rock, burned earth. Blue waters filled deep basins in the lava; these waters pulsed, some boiled; geysers shot up from clefts, fumaroles puffed, steams and vapors drifted over the plant-denuded plains. Of the brave little capital of Reykjavik only dust remained; an atom bomb had crashed there in the Third World War when the island was again about to become a base as it had been in the Second World War. After that apocalyptic event the Althing of the oldest republic in the world had resolved after more than eleven hundred years of existence that the surviving peoples should return to their old homes in Scandinavia. Only the most stubborn oldsters had chosen to remain; few children they begot. By the time Civilization's invasion fleet landed, only a few dispersed farms and a cluster of miserable little villages existed. Previous surveying expeditions had not been able to persuade these primitives to evacuate.

With his fleet at anchor along the South coast, the Russians had taken over the North and Gideon Kyle himself took off from the Mamlock's deck for a scouting flight. It was deep in the night; the hours of the greatest darkness, when the midnight sun dipped into

the sea. At dawn he landed by the camp his men had built on the old Reykjavik site. By the outskirts stood the lowly stone huts of the native fishermen. As he descended from the pilot's seat the Irishman was tired, fagged out with the tension and the strain. In the uncertain moonlight he stumbled over something soft. It turned over; it was a body dressed in sheep wool and it had a blackened bloated face. Looking around Gideon Kyle saw that the ground was strewn with bodies, natives all of them. Women and children too and dogs and little Iceland ponies and cows. They were all black and bloated; they all lay in pools of their own blood, a strange, uncanny kind of blood, pale pink and bubbling still, a blood which wouldn't coagulate.

He fired his signal-pistol. Elite guards came a running from the tents; they greeted him with joy: "Good to see you, commander; the 'Mamlock' already sent a radiogram for us to search for you; you've been overdue."

Gideon Kyle kept clenching his huge fists: "What's been going on over here; why are these people dead?"

They laughed: "Oh that? You mean the natives? You wouldn't believe it, Sir, but the natives got unruly last night. When we made camp they told us to go away; 'Sail home,' they cried, 'sail home, this is our land.' And they actually took a couple of our fellows for hostages. After that, of course, there was nothing for us to do but to spray the villages with the Garrott-Lights."

GIDEON KYLE gnashed his teeth. He knew this latest weapon and its terrible effects. These were the invisible rays which penetrated the skin and sealed all cells airtight as with shellac. The body was immediately stricken with a terrible thirst for oxygen. Within a minute the blood began to boil; the

victim trembled, the heart hammered, the eyes bulged out, the breast heaved, yet the entering oxygen could not halt the blood's own devouring. Panicky, the victim would run, the blood streaming from its mouth and nose and ears, the blood breaking through the walls of the veins and arteries, till he dropped dead. . . .

Gideon Kyle ran; into the Nissen-hut he stormed where Frennen sat, the guard commander: "Who gave the order for the Lights?"

The other looked astonished: "Why, I of course. Are you dissatisfied with the effect? It's been excellent; not a mouse escaped. The stretcher-bearers are already busy with the stiffs; 596 are accounted for so far. And new ones coming every minute. You know it was really funny; we put on the searchlights to get a real good look. First they ran like frightened rabbits. Then it was as if they were caught with a sneeze. Down on the ground they sat and sneezed themselves out, blood and gore and everything. Took them only a few minutes to do it."

The big Irishman winced: "You swine," he hissed, "you dirty swine!"

Frennen blinked: "Say, what's the matter with you? We haven't touched your plane with the Lights by any chance?"

"I'm in command. And I did not order this murder."

"Glad to hear it. But your orders certainly did not say that we submit to assault and battery from a bunch of savages." The fat élite guard chief wobbled with mirth: "Say, that's the best joke I've heard in a long while; when a bunch of wild Indians are dispatched to the happy hunting grounds, to call that murder! Or do you perhaps contemplate joining the venerable order of the Pioneers?"

"Shut up." Gideon Kyle turned on

his heels. A jet-launch brought him back aboard his ship. "For the next twenty-four hours you're in command" he told the captain.

Back in his suite his blonde Greek mistress Elena closed her arms around him, let him sob out his misery: "It's all right darling; I know how you feel, don't let it get you; this too will pass."

The man's broad shoulders shook: "I thought we made this expedition to create a better world. And now even as it starts it all turns out to be lies, lies, lies. I get nauseated with these human beasts. I want to have a farm in Ireland; to see no living soul. Watch the door; sure there are no mikes? If the secret police would see me as I'm now, they'd shoot me on the spot . . ."

The gorgeous girl comforted him: "Calm down darling, calm down. All this goes only to show how hard it is to get the old humanitarian nonsense out of one's system. Things like "love thy neighbor" or that "all men being born equal"—all that sort of thing—forget it; let me fix you a drink. Maybe its all nonsense this "Liberation of Greenland"; but if it is, it's glamorous, glorious nonsense. I get more thrills out of this expedition than from all my former life. Next time you fly over the volcanoes you must let me pilot the ship; I'd love that."

And twenty-four hours later they did fly, in Elena's arm Gideon Kyle had recovered, the attack of barbarous emotionalism had passed; he was his old civilized self. Hundreds of planes were up in the air in those first days, swarming around the volcanoes, photographing, checking up on previous surveys, making all kinds of tests. There was no longer any doubt as that the preliminary findings had been correct. Iceland stood, or rather it floated, on top of a mighty magma hearth. Carefully aimed from helicopters hoving in low

altitudes small bombs shot down, bursting like puffballs they shot out large blots of orange paint to mark the target-spots; not only the mouths of the volcanoes, the geysers, the fumaroles but a checkerboard of ten thousand targets all over the isle.

AT TACK-PREPARES were finished by June 16th; on that date both fleets lifted anchor, jettied out into the sea. Dispersing, the 1200 ships took positions in a mighty oval ring in distances of fifty miles minimum from the coast. For three tense, maddening days the fogs hampered operation; on the 20th at dawn the two admirals released the orders for the softening-up attacks.

From the turtle-back decks of the fleet the helicopters lifted the "flat-irons" as they were jokingly called, squat ten-ton monsters, the latest type of slow action atom bombs. As these hit their targets they did not explode. Innocent looking, almost like water-tanks, the first 800 of them dropped on the first flight that studded the island's center. Many disappeared in the depths of the lakes, in the mouths of the geysers. A minute passed with the planes still hovering overhead; then the dark-goggled pilots saw a blinding white light emerge from the bottom of the bombs: It grew like a rising sun. Then the rocks underneath seemed to collapse; they rocked the bomb. Then it sank, three or four feet at a time. It was a ball of fire now; it radiated half a million degrees of heat, not as a flash like the first atom bombs but in a steady stream. Hundreds of feet away rocks burst in thunderous explosions with this heat. Nearer the center a circle of solid rock, a hundred feet in diameter, turned to a reddish glow, walled steam, turned into a blast furnace, liquidized, closed over the sunken missile which kept on sinking, melting a shaft aimed

at the center of the earth, its heart of magma. Where the bombs were sunk into the lakes, the water boiled, threw geysers of steam-explosions. Over the glacier there grew in minutes scores of mushroom clouds to heights of thousands of feet. In haste the planes returned to base, lugged the next loads and again the next. Within four hours all Iceland was dotted with what looked like volcanic craters, magma-welling, radiating like tremendous searchlights into the steam which blanketed the sky, visible now like the cupola of a gigantic mosque to ships fifty miles out at the sea.

And the old earth began to tremble and to growl in pangs of labour; far out uneasy quivers ran across the sea; uneasy the heavings of the mighty ships. Behind the foot-thick plexi-glass walls along the rails the off-watches stood; men and women, instinctively holding each others hands in awed anticipation of the things to come.

None of the hundred thousands slept that night aboard the invasion fleet; Kyle and Hogstrand had already set the demolition-attack for 6 a.m. June the 21st.

Dawn came; all civilization held its breath as simultaneously from airports along the Norwegian coast, the Shetlands, the Hebrides, Scotland, Northern Ireland the biggest air-armada in all history took off; its target: The hearth of the earth.

While they still lugged their heavy atom bomb loads across the sea, the carrier planes from the fleet joined them. Invisible to one another the squadrons hurled themselves into the wall of steam, into the wall of thunder streaked with reddish glows, pierced by white flashes from the firelakes left by the softening-up operations.

There were no ack-ack guns, no enemy fighters; yet never had a mass at-

tack of bombers run into natural defenses as heavy as these. All navigation had to be by instrument, all target finding by heat-sensitive radar, all bombs had to hit precisely the mouths of the volcanoes, the pinpoints of liquid magmaponds, these whitehot needles which now pricked the skin of the earth a thousand feet deep. Only thus could the atom bombs reach maximum penetration, could they inflict the wounds to bleed the earth.

"BOMBS AWAY." From 25,000 planes the atom bombs plunged, simultaneously, automatically released. No human hand touched buttons. Scientists had anticipated that human nerves might crack at the critical moment. Scientists had anticipated that no plane could withstand the shock waves of 25,000 exploding atom bombs; they had installed delayed-action fuses which would hold out even against the terrific heat and pressures inside the magma shafts. What scientists had not anticipated was that Krabla and Leirhucr would become activated from the softening-up operations even before the dropping of the atom bombs. In the howling, thundering night neither the pilots nor their radar could see the tons of rock the two volcanoes had begun to hurl; they hit two atom bombs, broke their tough shells. In a split second a number of planes—never ascertained, but estimated in thousands theoretically later on—evaporated, hovering as they did within two thousand feet of the ground. The electric typhoons which followed put the sensitive electrical instruments out of commission all over the air armada. With their rotors running full blast, yet whirled about like snowflakes in a blizzard by the repercuSSION-waves, more thousands crashed into one another, hurtled down; were never seen again.

Scientists had estimated casualties at ten percent. As it turned out barely one half of the air armada "due to circumstances unforeseeable and beyond human control" found their way back to base.

Those who crash-landed on the heaving decks of the carriers—visible from the air only by foam-rings wherein they swallowed and tossed—those who were not killed and washed overboard as they clambered out of the machines by tidal waves which broke across the towering decks; those then in brief survived: more than half-mad themselves they met indescribable Bedlam-scenes. In the vast gyrating underdeck hangers men and women mechanics slithered, rolled from side to side, mixed up with gear; screaming, moaning, vomiting. Some laughed insanely, others cried like frightened children; everywhere there was the sickening stench of fear. The automatic jets still worked; captains and officers at the rudder held the ships against cyclonic storms and the on-rushing one hundred foot waves of the sea; for all the rest command and human organization had ceased to exist. Ships where the licensed personnel got panicky—there were many such—got into the troughs of the waves broadside, were capsized, foundered on the rocks, were never seen again. Those comprised approximately ten percent of the fleet.

It was not necessary for the radio stations of the world to broadcast the great attack. Three centuries ago the blowup of the Krakatoa had been heard three thousand miles away. Krabla and Leirhukr, Hekla and Kabla, Myrdal, Laki, Troellardyngar and Vetna; the roar of their explosions was heard to the ends of the world. Windows were shattered by the soundwaves as far away as Londonderry and Christiansund; six times the tidal waves raced

clear around the oceans of the world. When reverberating from the coasts and cross-seas ran smashing into one-another, they buried smaller ships as far away as the Cape of Good-Hope.

What actually happened on Iceland no human eye ever witnessed. Weeks passed before some of the unmanned, automatic observation planes filled with radar and recording-apparatus could be captured—with their radiosignals ineffective by electric storms they had dropped into the sea after exhaustion of their fuel-supply. Only then, from madly dancing, shadowy Radar-films, did the world learn how the biggest man made eruption of nature had come to pass.

As Radar showed it, in the first phase of the explosions the mountains had heaved as if trying to get up and to walk. Their contours narrowed and shrank; this was explained by the scientists through giant rock-avalanches the mountains shed as if a man sheds a heavy fur coat.

In the second phase the tops of the volcanoes collapsed; this looked as if some frightened turtles suddenly telescoped their heads within their shields. There was a pause after this which lasted almost fifteen seconds. Within this interval millions of rock-tons must have stifled momentarily the belch of the unfathomable pressures building up from within.

Then, in the third phase, the mountains *did* walk. They walked in falls and rises like bears with bullets in their lungs. Where they had stood Radar showed what looked like puddles of bubbling blood, what in reality were miles and miles of heaving magmalakes. Crawling across the central high-plateau the mountains piled themselves mile high and then collapsed and piled again, always leaving the trail of the earth's white and fiery blood. Some

crawled into the sea and sank. And then the ocean receded where they disappeared: torrents of magma, wide as the Mississippi, wide as the Amazon drove the ocean back, ten miles, twenty miles out. Roaring with the fury of superheated steam the ocean stood, an overhanging wall, continuously hurtling down in Niagara-falls, continuously evaporated in the act. Fire and water—creation's mightiest elements—deadlocked in hand-to-hand battle.

IN THE fourth phase—this after 24 hours—Iceland was no more. Where it had been there stretched from Lat. 66 to 70; from Long. 15 to 25, an ocean of white magma under a sky black with volcanic ashes, streaked with sulphur and red glitterings up to the stratosphere. Prepared as civilization had been for the event, there was death-gloom in London as the city was buried under ashes 20 inches thick, despite everything the whirl-bomb dispersers and the precipitator-engines at the outskirts could do. There were panics in New York and Philadelphia, in Hamburg, Stockholm, Paris and Madrid. Mass demonstrations of the frightened demanded that the expedition be abandoned: "Down with Greenland, Hang the leaders" went the public cry.

The Senate which in anticipation had already doubled and trebled the élite-guards, kept things under control with iron fists.

The crisis in morale was worst of course on the battered attacking fleet. Tossed about as if the 100,000 tonners were mere nutshells, pounded upon by tons and tons of rocks which hammered down incessantly on the steel of the turtleback decks, deafened by the unending roar of the eruptions, the men, the women of the crews were hardly human anymore. Air filters had been clogged within the first hour and as the

dazed mechanics tried to replace them with clumsy hands, the air-conditioning systems sucked the volcanic ash into the ships. It got in the crews' eyes and lungs and nasal passages, biting, acidy, needle-sharp as it was. After a few hours faces were swollen, eyeballs inflamed, intolerably painful; with tears streaming, almost blinded, the crews stumbled, slithered about in the heaving ships. Many coughed blood; the fouling of the filters had come unexpectedly; the issue of gas masks after the first shock was a little too late.

Marine-élite guards, heavily drugged into a state of euphoria tried to keep law and order at the point of gun. Even so there were mutinies on many ships. Whole squadrons fled, Southward to home-ports their course. Before they had gotten away for many miles, bombing planes dispatched by the alarmed senates caught up with them. Those ships which refused to turn back were mercilessly sunk.

Chaos reverted to a degree of organization after 24 hours when the tidal-waves subsided and contacts could be made from ship to ship. Uno Hogstrand the Russian commander in his personal red helicopter alighted on the "Mamlock's" rock strewn deck. Gideon Kyle himself lent him a hand as he descended from the cabin. Unashamed by their emotions the two men embraced:

"You have survived; you are all right! Good! How are things with your fleet?"

"I don't know—yet. Casualties are many; maybe up to 20 percent. Had mutinies too. This hell was worse than human nerves could stand. Hospital ships from home base are coming alongside right now. Guess I'll need plenty replacements; most of the casualties are psychic cases. We keep them drugged so they won't infect the others . . ."

"Same situation here. But Uno—

we've done it man, we've done it!"

"Yes Kyle; Iceland is ours. We can proceed."

And operations did indeed proceed; immediately almost following the impact of the catastrophe. If this should sound incredible, it must be kept in mind that in this, the 22nd century civilization had made technocracy its God; this God had grown in stature ever since the 19th century so that now he was the one, the only, the last God in whom the civilized believed. On his altars which were machines, burnt offerings of human lives were laid gladly, joyously. Sooner or later so the people felt, the machines would burn them up in any case. They were burning them up all the time. So why not now? Why not lie down on the altar on one's own free will and have life done and over with; explode it in some glorious firework . . . Such as it was, life certainly made no sense. It was too infinitesimal, too insignificant to stand up, to cut any kind of a figure before the Machine-god, the vast, the universal idol Man had cast from his desolation and his desperation in the spiritual desert of his heart.

Thus then it was that the crews took a new heart when reinforcements and supplies arrived, when over the intercoms the voices of the admirals resounded reassuringly:

"Comrades! The going was tough but we won a great victory. In us Man measured his strength against volcanoes and the volcanoes came out second-best! We've knocked them out—the earth surrenders to us unconditionally. In the holds of our ships we have the yoke to bend the globe into the service of humanity. Let's put it on; up with the Nets!"

JULY first began the laying of the Turmalin-nets. The idea was to

sink them vertically into the magma sea like so many plates of an electric storage battery. The idea was to let them sink as deep into the heart of the earth as they wanted to with magma-proof cables following them down into the abyss, each cable to be hooked up with a sister-Turmalin-net which was to remain in the holds, was to be charged from the Volcano-Battery, was to sail on to Greenland with the cable unrolling over the ocean-ground. The idea was to spread the charged Turmalin-nets along strategic lines across the glaciers, let the volcanic heat unleash and go work on the ice. This in essence was the Steinherz-plan.

In length of fifteen hundred feet, their massive weights suspended from conveyors, insulated against one another hung the Nets in the holds of the ships. When the slit-like hatches were thrown open along the whole 1600 foot-lengths of the turtlebacks, men knew that by the clock it was morning. But there was no morning, just as there was no night in that eerie Goetterdaemmerung-world. The rising sun showed only in blackish, greenish, orange shafts which stabbed the pall of steam mixed with volcanic ashes. Over the ships, noiseless in the volcanoes' deafening roars, shadowy like bats there winged again the bomber fleets from Britain and from Norway. The thunder with which the ten thousands of their light bombs broke up the incipient crusts over the volcanic sea, nobody heard. Their mission completed the bombers dipped their wings to the ships; visible only for seconds before the darkness swallowed them again.

Aircraft-carriers stood close by the Turmalin-freighters, their decks crowded with the warming-up Lifterplanes. Pilots had trained for this particular maneuver for months; besides that morning they had been given shots to

combat nervousness—medics with euphoria-shots had long replaced the chaplains of an older time. But even so the men and women in the pilot-seats were tense in the face of the greatest weight-lifting-operation in aviation history under conditions which no training could duplicate.

As down in the holds the conveyors started growling, as the top of the nets appeared above the turtledecks, from the aircraft-carriers to port and starboard the first pair of Lifterplanes shot up.

Glasshooks they lowered from their bellies; glass of a new type with the tensile strength of steel. For seconds they hovered over, then hooked on; gunning their engines they lifted the end of the net, fifty tons per plane. Timed to split-seconds came the next pair—and the next and the next. A thousand tons already hung suspended in the air, a giant serpent beating wings. More lifterplanes, more tons; two-thousand, three, four, five thousand tons. The snake stretched out its length; half a mile now; in a 60-degree angle it rose; as if alive it wafted in the gusts of the volcano blasts. Two hundred giant rotors whirled up into the steam, the volcano dust. Ten thousand tons of net, a mile of it hung waving over the ships. Crews held their breath. And then the giant cable drums astern began to hum as the snake streaked into the hell over Iceland, dragging its tail behind. Sparks flew as the three feet thick cable raced across the deck . . .

The fleet had steamed as close as possible to that continuous, that thousand mile long front where magma fought the ocean. The waters boiled; in gyrations never known to men before the giant freighters rocked, vertical plunges, vertical lifts of eighty and a hundred feet. In the expectancy of death at any moment the men, the

women, their faces black and blue, tattooed by the volcanic ashes, groaned. Indistinct in the steam they saw each other's faces, saw the gaping mouths, yet could not hear the cries as the volcanoes roared.

At a pace of only twenty miles an hour the lifterplanes carried the nets; more was impossible lest the cables break. It took them as an average four hours to get into position for the dropping of the nets. By that time for reasons never fully ascertained volcanic dust had penetrated cabins supposedly sealed. The pilots coughed, their eyeballs burned; it was hardly possible any longer to watch the instruments—which started to become erratic as did the machines.

With a few transport trains it happened that the leader plane misjudged the height or that one of the cyclonic blasts hit on a net. Downhanging net-seams were then caught in the magma-flood. Tremendous, sudden drag tore down the net and with it the two hundred lifterplanes. A fear crazed leader pilot would forget to press the button and blow-up fuses in the glasshooks all along the train would fail . . . stuck to the net, their rotors revving madly and in vain they crashed; all of two hundred machines. For fractions of a second a mantle of steam would still protect the human bodies as they plunged into the lava-mass. Then they curled up to bloody balls; with the fiery blood of the earth they mingled. Where planes had plunged a little puff of steam arose; that was the end.

THESE operations extended over a week. Three times the fleet commanders had their soundbeams—Radio wouldn't work in the electric storms—call London, call Washington, call Moscow; "More planes, more pilots, more ships, more Turmalin-nets!"—They al-

ways came. Gnashing their teeth, the Senate sent the necessary hecatombs to throw into the jaws of the Iceland Moloch. Civilization already had sacrificed too much; it couldn't afford to give up at this late stage of the gamble. What frightened the Senators were not the human sacrifices or the material as such; it was the tone which Kyle and Hogstrand both assumed: those were no longer moderate, polite requests but ultimatums. Both men acted as if the fate of the world lay in their hands; the rulers of civilization had uneasy premonitions that indeed it might be so . . .

"Iceland is ours. Turmalin-battery installed. Shall proceed for the liberation of Greenland."

Thus read the laconic bulletins of the two commanders which electrified all the new Babylons of the world. Smaller in print, lower and more casual in voice one heard about the losses: 256 ships, 103,000 planes; 227,000 lives, an approximately equal number of "psychic casualties." The various Departments of Mass-Psychology had seen to it that the public should not be jolted, that there should be no shock. The public was given the facts, but far and ahead of the announcement statisticians, psychologists, sociologists and educators had worked with might and main to "digest" the facts, to emasculate them of significance. Published they were but side by side with Second World War, Third World War, Pioneer War statistics. It was pointed out how appallingly high had been the costs in terms of human lives; how infinitely small had been the gains of these wars. And how "economical" by way of comparison—a mere drop in the bucket—lower even than traffic accidents in normal life—were the casualties which would win for mankind a new Paradise . . . The psychic shock-absorbers worked; there was no outcry. As the

sky over the New Babylons gradually lost its apocalyptic aspects, as darkness abated and the ashes ceased to rain, so did the fears of the masses. From the armed forces of the city-states, bored as they were with peacetime routine, new men volunteered to serve with the fleet.

In fact whereas London, Washington and Moscow had thought it necessary to exchange the entire personnel of the two fleets as "battle fatigued," it was discovered that it wasn't so. When the new troopships arrived in Icelandic waters and anchored alongside the old fleet, the newcomers met with hostility. These were no longer the same ships, the same men and women who had sailed from Europe and America only six weeks ago. New names, strange new symbols had been crudely painted across bows and on the turtleback decks. Without asking permission Kyle had renamed the "Mamlock" into "Katla"; Hogstrand's "Stalin" now was the "Myrdal"; every ship had adopted some name of the volcanoes, the lakes, the geysers of the old Iceland which was no more. It was as if they had been touched by a cataclysm which they had lived through, as if they had fallen in love with what they had destroyed. Lacking words to express the apocalyptic experience, some crew members had attempted to paint what they felt: erupting volcanoes on the decks, huge murals in the mess rooms depicting the death-flight of the bomber fleet, the Net-lifting operations, and how nets and planes were dragged into the Fire-Sea. From memory and imagination they had drawn human faces grimacing in stark horror, in the agony of death. From every bulkhead these seemed to jump out at the observer; the newcomers faced them with uneasiness.

TOLD that they were now at liberty to go home, the men, the women,

indelibly tattooed by the ashes, seared by experience which nobody else could share with them, almost went into mutiny:

"No, they didn't want to go home. These were their ships, this was their expedition; this was their lifework and they wanted to see it through. Nobody was going to take it out of their hands."

Headquarters was puzzled by the strange spirit of the fighting front. The old abyss between frontline and hinterland had opened up with explosive suddenness; Civilization was confronted with a human phenomenon as foreign almost as the settlers and the pioneers.

Provisions they took aboard, fuel and the fewest possible number of replacements; then on July 15th the combined fleets sailed for Greenland.

Iceland, the wall of steam and fire slowly sank astern; nights it shone like an immense *Aurea Borealis*, flame bursting up to the zenith. Sharp against this background stood the jagged outlines of new mountains which the magma already had begun to build up as its new ramparts against its oldest enemy, the sea. Following the course of the "Thomson-back," the submarine high-plateau which runs between Iceland and the southern tip of Greenland, the heavy freighters swallowed; their bows cut through the masses of dead fish which drifted, belly-upturned as far as eyes could see; over their sterns there unrolled growling and screaming the mammoth-cables which they dragged behind.

Progress was slow; drag of the cables as they shot down into the deep limited speed to five miles an hour. The cable-layers, following in the wake of the Turmalin-freighters had to stop every fifty or sixty miles when drums ran empty and new lengths of cable had to be spliced and welded in dangerous maneuvers with the floating drums,—

five thousand tonners each one,—bobbing like corks in the towering seas, still agitated by the volcanic eruptions.

Nights the off-watches gathered at the sterns of the Turmalin-ships; in fascination they stared at the incredible beauty of the Iceland hell they left behind. There was a strange expression of sadness and nostalgia in their eyes. They never spoke, but what they felt was: "Maybe it's hell. . . . But then: we made it. . . . It's the first wholly man made world; it's ours, it is—home."

Then, when eight bells rang, they returned to their stations; in the sound proofed quietness of the bridge they bent over the luminous compass-rose. Deep down, near the keel they crouched in the little chambers where the echo-sounders ticked off a graph of the ocean's bottom. Down to the roar of the Atom-turbines the elevators carried them; into the dim-lit tunnels they walked which housed the jets. Aboard the Turmalin-freighters however, the bulk of the crew, 120 electricians per watch, stood guard over the Turmalin-nets. Through the whole lengths of the ships these nets were suspended in oil tanks built from plastics, translucent like glass. Like sea monsters caught in some giant aquarium the nets could be watched through the walls. A dozen gangways, each mounted ten feet above the other gave access to every point along the nets. They seemed alive and were. In their baths of honey colored, high-viscosity oil they slowly swayed with the motion of the ship. The lower strands of the crystals would pound at times against the plastic walls like giant fingers; through the waving oil one could see them, luminous like deep-sea fishes. The "juice" from Iceland, nearly incalculable quantities of electricity, poured into the nets in torrents. Temperature gauges showed the nets to be

quite cool, but bubbles, big as pumpkins forming along the strands, slowly arose through the oil; they gave an inkling of the incredible forces which were gathering within.

To port and to starboard the huge bulkheads were almost covered with luminous dials; electronic eyes and ears, watchers of every change in the nets.

They all showed normal; the charging nets behaved exactly as the scientists had figured it. The elaborate records compounded every four hours from minute to minute observations, they contained nothing untoward. Yet there were certain phenomena which escaped the instruments. It all began with an abnormal attraction which the nets exercised on the personnel which guarded them. These men and women loved their jobs like a romance. Called on duty they smiled strangely; called off they became sad and were loath to leave. On the rare occasions when the medics could persuade them to speak up, some electrician would say: "I don't know what it is doctor, but the nets do something. They make me go soft inside. They make me so happy, I could sing. Sometimes I'm tempted to stroke the cables. You know, it's Iceland. It's the volcanic power. It flows and flows; we carry Iceland with us in our ships."

After the second week it was observed that the Turmalin-watches began to suffer from drowsiness when on duty. They got a dreamy look in their eyes, their memory lapsed, their sense of duty left them. Smiling like children in a happy dream they sat down on gangway gratings, leaned their foreheads against the plastic walls, fell into hypnotic trances. It was quite irresistible; and it was dangerous. Watches had to be shortened; first from four hours to three, then to two hours;

finally to one. This nearly led to mutiny, the crews refused to leave; said they were happy down there; said it was dark and cold outside the Turmalin-holds (which was not true). Pep talks, caffeine-tablets, injections which the medics tried helped little.

Towards the end of that week a quite abnormal sexual stimulation manifested itself amongst the Turmalin-crews. Down in the holds while on duty they proffered a spectacle ludicrous enough to outsiders; the men and women got romantic, held hands, looked deep into each others eyes, sighed and swooned in lovesickness in the 20th-century Hollywood-manner, unconscious of how utterly silly it all was. Transported by emotions they loved. It became necessary to segregate the sexes; to have all male and all female crews on the Turmalin-ships redeployed which helped little because sexual perversions broke out.

What had been dimly suspected by the scientists became apparent during the long journey's third week: the nets emanated some kind of a radiation, unfathomable to existing instruments. This radiation grew enormously in power in step with the charging of the nets. Checked and rechecked all insulations were proved to be intact; temperatures normal; and yet, there they were, the uncanny, the frightening, the entirely unforeseen phenomena against which one was helpless.

For reasons unknown electric lights aboard the Turmalin-ships began to flicker for minutes, sometimes hours in parallel rhythms with the flickerings of the huge Aurora Borealis over Iceland, still visible though more than a thousand miles away. Likewise all electronic apparatus aboard became erratic; the aircraft-carriers now had to take over the soundings, the radar-guard against icebergs; only in their

wake followed the Turmalin-ships. Radio contact with home bases was interrupted by heaviest static; even communications from ship to ship.

DECK personnel made still other and even stranger discoveries. The fleet had now entered waters where animal-life had not suffered from the volcano eruptions. A great many whales were observed; the ocean seemed to be teeming with fish. In the beginning the zoologists of the expeditions ascribed this to large-scale migrations of fish away from the Iceland danger zone. Old salts among the sailors shook their heads. Never, they said, had they seen anything like this. The whales, the sharks, the silvery masses of mackerel, so they claimed, were not to be found in the vicinity of the patrol-ships, not around the aircraft carriers and cable-ships: "They follow the Turmalins." And this was true.

The same unfathomable radiation which affected the crews, which affected the electronic apparatus, exerted its power over the life in the ocean. Faithfully like tugboats did the whales accompany the ships; they seemed to love rubbing their flanks against the rushing steel; when they came up to blow swarms of small fish slithered flapping down their broad blue backs. The triangle backfins of sharks sailed in the wake of the Turmalin-ships like a parading army. With the undying hatred of sailors the crews started firing at them; there were quick whirls—for a few seconds the water seemed to boil—and then the ranks of the sharks closed in again. It was impossible to drive them away even when the patrol boats zig-zagged through the columns of the Turmalin-ships and threw a few ash-cans.

The unknown magnetism seemed to reach far into the air; birds became at-

tracted. The curved turtleback decks swarmed with sea gulls, polar geese, eider ducks. They besieged the hatches; some seemed to be trying to nest. Around every bullseye they fluttered, screaming excitedly. When bulkheads were opened they tried to get in. They showed no fear nor hesitation; when experimentally a few were let in, they hopped and winged their way down to the holds. As near as possible to the Turmalins they worked their way, beating their wings against steel, scratching at it angrily to get still nearer. Then, drowsily they closed their yellow eyes and seemed content, ruffling their feathers like chicken in a sand bath.

Each morning they were swept with hoses from the decks; when it was over they returned in even greater strength. The crews in their strange transports of inexplicable happiness didn't mind them; but the scientists aboard became concerned: this mysterious force which emanated from the Turmalins, what was it?

On the twenty-first night of the voyage several lookouts gave alarm: "The sea's afire!"

They had observed the strong luminosity of the water for several nights before, but had thought it was the well known phenomenon of microscopic animal-life, common in the tropics. This night however, it had become as strong as lightning; sheet lightning which shot out for half a mile ahead and all around the ships, turning the waters translucent, showing how they were jam-packed with the black and silvery bodies of fish; all swimming in one direction: with the Turmalin-ships. There was no doubt that this radiation came from the ships.

Normally there is very little marine growth in subarctic and arctic waters; all the more it became puzzling to the engineers and scientists when day by

day the slow speed of the cable-dragging fleet was further reduced by thick coats of barnacles and algae which the hulls gathered in ever increasing masses. It affected only the Turmalin-ships; every kind of life they seemed to attract and to foment with furious force. Scientists collected specimens and found the seaweeds familiar in type but quite unusual in growth. Twelve feet long and more their stems were thick as arms; they branched out richer and more vigorous than had been known before even in tropical waters. Teleheaters were used to burn them off the hulls; next morning new ones had grown a coat of submarine growth ten feet thick. Like everything else the plants seemed to be trying to get as near as possible to the Turmalins. Along the anchor-chains, along the outside of the jet-wells they grew into the ships. Up the steel-flanks they crawled, growing like beanstalks of the fairy tales. Hacked off the decks, thrown overboard the shoots attached themselves again.

With burners, hatchets, axes, knives the crews battled these creeping things which threatened to overgrow, to mott whole ships. In vain: the terrible new magnetism now started to animate seemingly dead things which were part of the ships themselves.

It began with the steel in the Turmalin-holds. Its surface corroded; in an inexplicable manner it blistered, peeled, cropped out in crystalline formations like ores in the ground. Higher up in cabins and mess halls the woodwork warped; from knots in the plywood-pansels leafs and little branches sprouted. They all grew downward in the direction of the Turmalins.

MOST frightening however, the unknown power appeared in the levitation of the giant ships. Each day their draft diminished by six inches al-

though there was no corresponding lightening in weight. They now showed broad expanses of their bellies, up to eight feet below the original waterline. It was as if like waterbirds they aimed to lift themselves into the air. Crews of the aircraft carriers and the auxiliary craft were scared at the sight of the Turmalins as higher and higher they towered, swaying as if they *walked* over the sea. Engineers began to figure on the date when the ships would capsize or else the jets blast into empty air.

Fear of the eerie radiation had become so great that Kyle and Hogstrand ordered daily exchange of crews between the Turmalins and "normal" ships. These orders, executed by fleets of helicopters, two days later were amended to evacuation twice a day. All non-essential personnel was permanently transferred to other ships. Of the emergency crews none dared to remain for longer than twelve hours aboard the Turmalins.

The reports of the scientists, sound beamed and daily flown by courier plane to Moscow where Steinherz was in charge alarmed the ruling élites of all the civilized world. One had tried to shrug them off at first, had tried to explain it all away. All members of the expedition it was said, had become mentally unbalanced, their observations unreliable, their nerves "battle-fatigued" as a result of the Iceland operation. Observers, finally dispatched to the spot, confirmed the findings. It wasn't easy even for Steinherz's immense authority to calm the Senate, to make them view things in their proper proportion:

"An hitherto unknown type of radiation had developed from the charging Turmalins? Very interesting; to be expected as a matter of course since one experimented on a large scale with a new power source. He himself, his collaborators, the scientists of all the world

would be most anxious to receive specimens to work with. Why not curtail the Greenland operations temporarily to a small extent and have a score or so of Turmalin-freighters turn back to civilization where the Turmalins could be closely studied by the leading laboratories? As to the expedition; what was the exact position of the fleets? Only 200 miles from Greenland's southern tip? Excellent: let operations proceed with the utmost speed before the unknown radiation seriously interfered with the de-icing processes."

London and Washington received Steinherz's considered opinion with great satisfaction, bordering on exuberance. Forever suspicious of one another they had long held misgivings over the Moscow monopoly in the Turmalin discoveries. Now Steinherz himself invited them to participate in secrets as important as had been the Atom bomb of the Second World War.

From bases on the American coast, the British and Continental coasts huge destroyer-seaplanes took off to intercept the Greenland fleets. Within hours they circled over the ships, ordered them to stop. But tempers exploded at the meeting of Civilization's ambassadors with the two fleet-admirals. Kyle and Hogstrand flatly refused at first to hand over the 24 Turmalin-ships. Faced with an ultimatum that in any such case their supplies would be cut off, they finally gave in after an exchange of highly undiplomatic language. Nor was this the end: ordered to set their courses South and West, mutiny broke out on the 24 ships. Three times the crews rejected invitation to surrender and threatened to scuttle the ships. What they didn't know was that meanwhile a squadron of submarines had also arrived on the scene of action. After the end of the deadline the subs, having attached themselves to the freighters'

keels, burned holes into the holds, attached the gas-hoses and gassed the ships. After a few minutes when everybody aboard was dead, they ordered tugboats to take the Turmalins in tow.

Thus matters stood on July 29th, two days before the combined fleets sighted Greenland and dispersed along the coasts to take attack-positions.

CHAPTER XIII

The Liberation of Greenland—Civilization Quarantines the Fleets.

STRATEGICALLY located, in conjunction with Europe, Asia and America the island continent stretched from Lat. 60 up to Lat. 86. Millions of years ago when the earth was young and raced around a hotter sun, Greenland's life had been luxuriant; enormous in its bursts of vital energy. Later the vast gyroscope of the globe had slightly changed its angle; the radiations of a cooling sun no longer evoked the answering radiation of the planet's fiery heart. Like illness and death which befall bodies which have spent their vitality, so Cold had invaded Greenland, had buried it under glaciers, a thousand feet thick as an average, which crushed the very rocks, which pressed the giant island down into the sea with their enormous weights.

This was the land civilization had set out to liberate. Preparations for the invasion had started years ago. Able to "see" through ice, Radar had established the exact topography of the buried land; the glaciers themselves, wandering as they did in the slow motion of eternity, indicated the paths, the directions of their destinies.

For years also the technicians and scientists of Russia and America had flown in from Siberia, across the Davis Strait and Baffin Bay; bases they had

established; during the short summer months they had pushed through the ice large quantities of material. All Greenland had been ringed with power cables, waiting to be hooked up with the Iceland Volcano-Battery. In giant ice-caves (to melt these storage spaces into the glaciers had proved to be the cheapest manner of construction) reserves in uncharged Turmalin-nets had been built up.

There had been much dispute in scientific circles as to methods of suspending the nets over Greenland and of bringing their powers to bear. The American school had favored the now three centuries old idea of a Hungarian, Prof. Oberth, namely to shoot the nets up by rockets into the border line zone of gravitation, to spread them out where there would be no weight, to let them rotate like a small planet in a fixed position to the island continent. The British school had objected on the grounds of the tremendous energy needed to uphold the power cables through the atmosphere. Slightest failure in the continuously needed blasts of lifter-rockets, so they said, would collapse the whole system with its extreme fragility.

Finally the Moscow school had won out with the Steinherz plan. According to the Steinherz theory the nets, the moment they began to discharge, would create a magnetic field strong enough to keep them suspended in the atmosphere. The problem, he held was not how to keep the nets up, but rather how to keep them down. This he proposed to do by means of mooring masts and suspension-cables to which the nets were to be attached like bedsheets to a clothesline.

Across the glaciers, following the courses of sub-glacial valleys leading to the sea, thousands of these mooring-masts had been erected. Down through the ice they reached a thousand feet and

deeper still into the rock for anchorage. Up into the air they reached for 1500 feet, looking frail from afar like spider-webs.

AS THE hulls of the Turmalin-ships above the gray horizon, as slowly they crawled to port like wounded men who utterly exhausted drag themselves from a battlefield, the crews of the shore installations were shocked, were frightened with the appearance of the ships. Unnaturally high they towered, and . . . those were no longer ships; floating islands they resembled, completely matted with organic growth. Anchors were so entangled in networks of seaweed, each stem a full foot thick, that they wouldn't drop when released. The first men from shore who boarded the Turmalins had to fight their way into the holds through strange pale spider-webs of organic growth which sprouted from the walls and closed the space within an hour after anybody passed.

The half insane, the nervously exhausted men and women of the crews were immediately transferred to hospital ships—the fleet's own hospital ships. The crews rejected any attempted persuasion to return them to base-hospitals. "Don't let us be shipped back home," they implored the two admirals; "we're in this operation to the bitter end." Kyle and Hogstrand granted the appeal.

After that operations proceeded as scheduled and with relative smoothness. After all there were no volcanic eruptions as in Iceland and the techniques of the "airtrains" had become better known.

Beginning August first, one by one, the giant aerial serpents, mile-long, glittering with crystalline substance, dripping with oil, suspended under the roaring rotors of the lifter-planes, they streaked inland, were attached to their

masts, were held in position till the switches were thrown. As the insulation was burned off the Turmalins' tremors ran through the nets, they stiffened, just as every muscle stiffens in a beast of prey before it jumps; thus stretched the strands.

UP IN the lifter planes instrument needles registered spasmodic decreases of weight; engines had to be throttled down. After a minute the planes had only their own weight to carry; sheet-lightning, blinding, crackling, spiralling it started to overrun the nets. At that critical split-second the airtrain-commander pressed the red button. The glasshooks, blown apart came down in a glittering rain; liberated from the net the planes shot up, scattered like frightened crows from a shotgun flash. One moment longer and the planes would have disintegrated in midair under the first shockwave of heat.

There were of course such accidents as disintegrating airtrains, but they became fewer in number as time went on and the system reached perfection. Only ten Nets had been hung on August first; by August tenth a thousand were in position. In a race against time, against the increasingly violent electric storms of the discharges and the approach of arctic winter, ten thousand miles of Net were laid by September first. They criss-crossed the island-continent from end to end, encircled it. From the air the winding Nets looked like wide rivers of liquid silver with the flashing discharges of their electricity. Air pictures however could only be taken with Radar; to human eyes Greenland was shrouded in a pall of whitish steam, ten thousand feet thick, emanating like an enormous neon sign, eerie, pinkish aurea-borealis light.

And the rigid body of the ice-covered

continent, under the transfusion with the fiery blood from the heart of the Earth it began to bestir itself. As the news reached the capitals of the world, all civilization was emotionally swept off its feet. Millions wept with the joy as if they had just learned that their soldier boy, believed to have fallen in battle, had been miraculously returned to life through the surgeons' art. The first flutterings of Greenland's revival were almost imperceptible under the armour plating of the ice:

As the life-giving heat wafted along the glaciers like the breath of a Creator-god, its fire tongue licked up the snow, evaporated it so that it filled the air with steam, became a conductor to the discharging electricity, spreading the sheet-lightning, softening, turning its blinding flashes from white to pink. The polar-coolness of the atmosphere transformed into the gestating heat of a womb, a vast pink, soft-walled womb enclosing the cold island-continent to have its life reborn. As in a tropical jungle there was moisture incessantly dripping from the steaming atmosphere; along the lines of the Nets torrential tropical rains poured down. As the snow went the glaciers had turned transparent like huge mountains of glass; now the rain softened their surface which became opaque like milk.

DIRECTLY underneath the Nets the fierce radiating heat cracked clefts into the ice, a thousand feet down to the rocky ground. Tremendous thunder-claps, quakes, screams of a hell unleashed accompanied these ruptures. The buried mountains, the ice-filled vales, had no eyes to see nor ears to hear. Still, with their sensory apperception different from Man's, they "felt" something happening; something that penetrated, a moving force, a sickness which came over the ice. . . .

Into the greenish canyons there poured the hot pink rays. White waters gushed from the rims down in canyon's bottoms the great battle for water was fought between the heat and the cold. The new created mountain streams attacked the glaciers from their underbelly—gnawed at it, honeycombed it. The glaciers themselves aided their own undermining through the tons of their weight. Ice liquified through pressure, kept liquid through this new warmth which crept along the earth—floated the glaciers. As if they had been put on rollerbearings they began to move, imperceptible at first out to the sea.

Already in places the old bones of the earth were bared, hilltops, black, smoothed by the glaciers' wanderings, shiny with the waters from above. Already the torrential streams down in the gorges turned from white to brown as they tore up the ground and the massive bergs plowed it up as tumbling over and over the bergs raced down.

As if the Nets were giant harps, the power sang in their strands with the high screamings of typhoons; whirls of hot blasts perpetually formed and shot out from the singing crystals. Below the gorges reverberated with incessant thunders from the avalanches and above, the sky roared with the crashings of electrical discharges.

Far out at sea the battle raged between the ocean and the ice. As inch by inch the glaciers slithered down the slopes, they splintered, broke off, collapsed in walls measurable only in terms of millions of tons. Hurling themselves forward they tried to crush the waves. The ocean's counterattacks which came in waves of waterwalls hundreds of feet high, smashed the ice to bergs, the size of city blocks, whirled them, drifted them back. Unprecedented floods and storms devastated the coasts of Europe; Amsterdam, Rotter-

dam and Copenhagen had to be evacuated. Davis-Strait, the Arctic ocean, the North Sea, the British Channel, the Baltic had to be closed for shipping dotted with bergs as they were. Some of the floating ice castles even reached the equator before they disappeared.

Long before that, in fact within the hour the last Net was hung, the expedition-fleets had fled Westward and South leaving the empty shells of the Turmalins behind. These ships, already matted with furious vegetation all over again, were wrecks. Their very steel cancerous, consumed by the mysterious rays; no crew could have been found to sail them. Their jets aroaring, going full blast, pursued already by the angry tidal waves from Greenland which pounded on their decks, the ships raced past Iceland.

Hogstrand and Kyle ordered the flags dipped in memory to shipmates who had sacrificed their lives, those thousands, those ten-thousands . . . All day long the flags remained at halfmast and crews thronged the decks, stood bare-headed and awed by past experience, their eyes riveted at that huge flaming torch on the horizon . . . Iceland the beloved, Iceland where each man and woman aboard had lived the hours and the days of destiny . . .

The following night from every ship in the fleet rockets went up in fireworks of celebration. Searchlights shook hands with one another in the sky from ship to ship. The parting hour for the two fleets had struck. In fiery rocket-letters the two admirals spelled out their parting message, addressed to one another, addressed to every man and woman of the fleet:

"Remember Iceland!" The answer came: "Forever and forever."

"Remember the comrades whom we lost?" The answer came: "In spirit they are with us."

"Let's keep the volcanoes burning in our hearts!" The answer came: "Their flames have welded us together; united we stand."

"Who then could ever defeat us?" The answer came: "No Power on earth! —Farewell comrades."

"Farewell—Farewell!"

THE fleets parted; the Hecla, Hogstrand's flagship veered South wallowing in the colossal seas which hit her broadside now. Kyle's Krabla continued Southwest, course for the Hebrides. The endless columns of the Russian and the Anglo-Saxon ships follow in the wakes of their leaders.

Already had the lookouts of the Westerners the ragged rocks of Fellar Uya Umst in sight when the bows of their ships were crossed by warships, giant submarines unexpectedly emerging from the deep. In brilliant maneuvers the low silhouetted craft broke through the columns, turned and reduced their speed to that of the tired Greenland fleet. Orders they flashed for the ships to stop and await further orders.

A few minutes later a big amphibious plane with the marks of the London Admiralty landed on the Krabla's flightdeck. Grand admiral Rutherford in person descended, followed at a respectful distance by a mixed Anglo-American staff. With outstretched hands the great man stepped briskly forward to Gideon Kyle:

"My dear fellow; so happy to have you back. And all safe and sound . . ." A little dubiously the Grand admiral let his eyes wander from Kyle's long, flying hair of the man, his ashen face, his sunken eyes down the tattered battled dress . . . "No, thanks; I will not step in; I have only a few words to say. Kyle, this may be a little disappointing to you and your brave crews; you cannot go home . . ."

"Cannot go home?"

"No; you'll proceed to the Firth of Forth. Winter quarters have been prepared for you; fairly comfortable, I dare say. You'll stay there till spring; the Russians by the way will quarter on Bornholm. Till operations in the Arctic are resumed . . ."

"Quarantined? But why?"

"It's that fellow Steinherz. He reports there's something fishy about the Nets. Some kind of a disease; you probably know more about it than I do. He's afraid it might be contagious . . . So that of course civilization can not afford to; to . . ."

"I understand."

"Knew you would. A simple matter of precaution. We wish to give you and your crews a good rest, have a good time and all that. Remember, all civilization is proud of you; look what we brought you."

Rutherford whirled around, motioned impatiently for adjutants to step forward with the heavy boxes the plane's crew had unloaded on the Krabla's deck. The admiral opened a lid: "Here you are—one for every man and woman on your ships. Wear them with pride. Must be going now. Goodbye Kyle. And Good Luck."

With a faraway look Gideon Kyle stared after the departing plane. His big freckled hand reached down into the box, fished out a medal. For a moment he looked at the golden disk, read the inscription:

"Eritis Sicut Deus" it ran around the Sun of Civilization as victoriously it arose over an erupting volcano.

He frowned. Then quickly hurled it overboard. Curious flight-deck crews had gathered around. Kicking one box with his heavy rubber sole Gideon Kyle said:

"Yours, all yours. From our various grateful Fatherlands."

THAT night the rumors of the Quarantine spread like wildfire over the fleet; also that night Davy Jones put a lot of new gold into his locker.

Turning with the tides, around and around their moorings drifted the ships in the big bay. They had been disarmed; i.e. all aircraft had been removed from the carriers and important machine parts from the patrolships under the pretext of repairs.

In steamheated, hotel-like barracks on shore the crews lolled through the wet and dreary winter. Many would stay in bed for months; sleeping, yawning through the days, having the flunkies bring them food, refusing to do anything . . .

Others wandered aimlessly afar and wide; among the rocks and heather among the ruins of the old-time villages and towns. When many miles inland perchance they saw the electric fence which cut across the peninsula and noted the élite guards standing behind; they turned their backs. Sometimes they fell in with natives; there were a few left, semi-savages, superstitious, the settler type. Most would flee of course, but there was a white-haired old hag who lived in a rock-cave who didn't shrink from the approach of her betters. Quite often a few and women from the ships took shelter in that cave when one of the typhoons from Iceland and from Greenland roared. It gave them an eerie feeling when the old witch, her eyes inflamed from the smoke of her peat-fire, raised her bony hand to point out to the sea and said:

"That's all you can do you young ones: destroy and destroy and destroy. Your hands are accursed, do you know that?"

Some of her guests were impressed. There was much gossip in the camp around that "De-Witt—Frouw" as she called herself.

IN THE midst of a bad storm a little sailboat slipped into the bay at night. Heavy fog had protected it from the patrol boats outside, the life-boat and the lone man at its helm: Hogstrand who had made the daring trip from Bornholm where the Russians wintered. In his dark little bedroom Gideon Kyle was aroused by seawater dropping into his face. He made a move for the switch: an ice cold hand gripped his:

"Don't."

"Who is it?"

"Me—Uno."

"No!"

"Yes, yes—pst; don't shout so loud. It's me all right; came over in a boat; had to see you; ask a few things . . . Are there any epidemics in your camp?"

"No. Many go crazy. But there's nothing from the Nets."

"Same with us in Bornholm. Why then did they quarantine us do you think?"

"They're scared. I don't know why they should be, Uno, but seems to me they're scared of us. Because we're changed maybe . . ."

"That might be it Gideon. We sure are changed. Ever since we tore up Krabla and Hecla I've felt it; we'll never be the same again."

"You know, Uno; we shouldn't have done it. I feel it in my bones, I cannot express it very well . . . but there is a law and we have transgressed it . . . call it the law of the earth . . . Guess I'm a bit crazy myself but that's the way I see it."

"Same here Gideon, same here. We played with fire. I have a premonition it will end badly . . . Supposing next spring they ask us to go out there again; lay more Nets and things. What do we do?"

"Lord knows, Uno; I'm sure I don't. We made them a new continent. We

paid the price in blood. It was high, terribly high; you know that . . . So that it seems to me we have a claim to it, a darned good claim, better than any other men's. It's ours, Greenland is, it's ours, Uno . . ."

"Shall we take it for ourselves Gideon? They don't want us here, they shun us like the plague . . ."

"Yes, Uno, yes I think we should . . . Stay there; never come back. Live like . . . like the settlers, like the Pioneers . . ."

"It's a terrible thing to say, Gideon, but then He was right."

"Don't say the name, Uno; one never knows, walls may have ears even here . . . yes, He was right I think."

The following night the little boat with the lone man at the tiller broke through the blockade again. That the plan failed to materialize was due to unforeseen events.

The horrible events nobody could have foreseen overtook civilization in that spring and summer of 2172.

CHAPTER XIV

The Monsters from Greenland invade Europe and America. Civilization is Forced Underground.

THREE times during the winter the seismographs all over the world had registered violent quakes with Greenland for their center. Science knew what had happened: the old continent was arising from its grave of ice; majestically it raised itself, with the heads of its mountains it looked around into the rosy dawn of its new day; in three great thrusts these mountains and plateaus had lifted themselves more than 1800 feet.

That much was definitely established through Radar; also it was known theoretically that the new Sun which Man

had lit up over the island-continent would have a terrific attraction to life; the life in the ocean, the life of the earth masses which the glaciers had pushed into the ocean in millions of tons. Direct observation however had been impossible all winter long; no plane could land in the chaos of the new creation, no ship could break through the blockade of the bergs, no pilot could see beyond his instrument board as his ship patrolled through the rose-colored, the thundering, the whirling masses of steam. In April therefore the two fleets received orders to sail.

Slowly, cautiously sounding their paths for changes on the ocean's bottom they advanced. The farther North they came, the stronger grew the mysterious radiation; like a giant magnolia bursting into flower it stood in the North. From Lat. 65 on they no longer saw the sun. The sun was blotted out by cloudbanks which shed a light of their own on the sea. Also from the North there came a sound, musical as if beyond the horizon some colossal organ were being played by a dreaming god; it came on the wings of the winds, it had a hypnotizing effect. The monosyllabic crews walked about as in a trance. There was no longer night or day, only this wonderful, this stimulating glow. Looking over the stern in daytime one could still make out a pale grey line across the southern horizon. This sickly, ugly grey was the day of the ordinary earth; it was noticed with loathing.

Winds were cool but balmy. The new sun over Greenland had changed all the old pattern of air currents; like the equator the island-continent attracted the winds. As if they were entering a subtropical zone the deck crews shed most of their garments; one could move now in shorts without discomfort.

From lat. 67 to 69 the squadrons

passed through a girdle of violent typhoons. The giant aircraft carriers were battered by them; during brief intervals of calm tropical cloudbursts drowned the decks.

Beyond lat. 69 in a region normally ice locked at this time of the year, they met moderate seas and northerly winds blowing with the regularity of trade-winds. The intensity of the pink light had enormously increased; it now was almost white. Then the ocean turned a purple, beautiful like burgundy wine and it became strangely calm although the winds continued to blow in moist, steamy currents.

The purple calmness of the sea came from huge masses of Sargasso, seaweeds which first drifted by in islands, then covered the whole surface of the water, dampening its moves. It was as if steppes and meadows had arisen from the oceans' bottom. For days the fleets were stopped; hugely interested in the phenomenon the scientists ordered motorboats to be lowered to explore the Sargasso. They found its layers to be from 20 to 30 feet thick, its surface lifted almost a foot above the water-line, so buoyant it supported oars and even boat anchors tentatively hurled on it; so matted that it fouled the screws which had to be cleared every few minutes.

They also found the sargasso to be teeming with known and unknown life. Butterflies sailed over the floating meadows. Crayfish crawled in the stems. Wherever a boat hook probed into the mass it vibrated with scurrying fish. The hooks brought out huge snails which clung to plants and gorgeous medusae caught in their tentacles fishes, already pale as the life was sucked from them. In the dark depths larger beings were vaguely seen; they evaded the hooks and nets; small waterbombs brought a few to the surface. Some

were big eels up to twelve feet long, some were fast swimming seals of an unknown species. The greatest surprise however was the presence of land animals. Small rats of fuzzy, feather-like fur overran the heaving meadows; fish snapped for them and they uttered a shrill squeak as they jumped or dived. Animal noises of all kinds pulsed through the sargasso-mass, snortings, gruntings, gurglings, so foreign and uncanny it sometimes frightened the men in the boats.

THE air had become very oppressive; it erupted in sudden blasts of breath-taking heat. Tree trunks of tropical character floated in the sargasso; it was not clear whether those were really trees or warty roots of giant weeds. Some were freshly gnawed as if by beavers. Astonishing new life came sailing through the air. At first it was only bird feathers, found lying on the sargasso, drifting down to the decks. Most were white, some showed all rainbow colors; all were unusually soft and downy as if stemming from very young animals. Leaves too drifted and fluttered down; strangely shaped, hairy, curled up and sometimes charred. The plants from which they stemmed were unknown to the botanists. One day nearer to Greenland (the fleet marched at a greatly reduced speed with frequent stoppings), the birds themselves were seen; in fact they fell aboard in droves in a state of utter exhaustion. They died the moment somebody picked them up. Sometimes so many came, they rained down on the ships. They were small, mostly pigeon-sized and of the sea gull type. But all the feathers were extraordinarily soft and some shone in beautiful shades of green, gold, blue, and red like parrots. What puzzled the zoologists more than anything were indications that these

birds had been burned or singed; fear of fire must have caused their mad flight.

The next night while the ships pounded their way at only two miles an hour through the matted organic masses, the lookouts, peering into the reddish glare reported whales. Waterspouts broke the sargasso surface, the plant masses heaved, and there were strange moaning sounds and sputterings. Immediately a dozen motorboats were lowered; whirling they shot to the nearest point of the commotion and entered a zone of foam. Suddenly a cry arose; six boats out of the dozen hurtled through the air with tiny human figures tumbling out of them.

Out of the Sargasso an enormous back arose; blue-green and scaly; a reptile's head on a giraffe's neck shot up to the height of the nearest aircraft carrier's deck. Thunder broke from beatings of a massive tail; on crocodile-feet the monster started running across the rubberlike oceanic meadow spreading and beating bat-like wings. Heavily it rose into the air, fumbling-like, clumsy, grabbing for balance with its feet. Then, sharply outlined against the red glow of the sky, it streaked across the water a mile, perhaps, until it dived with a tremendous splash.

Off-watches, deck crews, scientists, flabbergasted, they stared after the apparition: a flying sea-serpent, something out of forgotten sagas, something which couldn't exist . . .

The next day a tragic incident occurred which almost caused mutiny aboard the group of ships which witnessed it. Often half a dozen of the big transports lay at a dead-stop in a semicircle with scores of little boats scurrying through the sargasso-meadows in between. Sailors and scientists in the boats observed what they thought was a column of thermal wind arising from the waters; nothing very

unusual in a tropical zone like this. But an unusual noise came from the vibrating air, something like the high singing of a dynamo, something like the swish of a ventilator; its volume increased, it became overwhelming like the screeching of a power dive. Fifteen boats were lumped together near the funnel-shaped whirl of the air, when, with amazement too great even for horror, it was observed that the thing was alive, that its glassy body contained semi-transparent black masses which wriggled in its midst like snakes—obviously food in spasmic motion, being dissolved in the glassy being's digestive tract.

WHILE open-mouthed, the men in the boats still stared they heard all around them the shrill fear-squeak of the little rats as they dived for shelter. Then they got a smell into their nostrils; nauseating, fetid, breath-taking, like sulphuric gas. For a horrible moment they felt tentacles slide around the boat, almost invisible except for the moist glitterings of the air, felt their boats lifted in a bunch, shooting upwards as in a giant elevator. And that was the end.

Aboard the big transports and aircraft carriers thousands watched in awed terror black little spots sliding down the glittering whirl in the air in arrested, spasmodic movements; watched them dissolve in what seemed like air but was transparent intestine shaking, squeezing indigestible matter in violent cramps. Then the black spots became smaller as the shells of the boats were squashed; finally the top-spots curved down and the lower spots shot up as the giant air-medusa dived in disgust to relieve itself in the water from a severe attack of indigestion caused by marine engines.

After this, panicky deck crews and engineers pushed their officers away

from the machines; like scared rabbits the mighty ships scattered to the South; did almost a hundred miles before the revolt could be brought under control. Indescribable, panicky fear spread over both fleets; the fear of babes lost in the woods; the fear of nameless mystical powers; it befell even the scientists. It took all force of character of leaders like Hogstrand and Kyle; it also took the point of disintegrator tommy guns, the fear-crazed men and women to stay on their posts and turn North again.

It was already June when the mainland of Greenland hove into sight, glaring the gleam of the white suns which furiously, roaring, singing, thundering lashed their heat down on an earth liberated of millions of years of ice-captivity. The sight of it was awe inspiring; all nature seemed to be on the march to witness, to take part in the miracle of this creation. Just as from all directions the cool winds were attracted to the blasts of this heat, so the cool waters and the cool creatures in them were magnetically drawn. With its live-matter the ocean had thrust a wall against the fierce attacks of this new heat. Miles from the coast the carpets of sargasso became solid masses which extended to the bottom of the sea. Only where the mountain streams gushed down channels had been torn. Still nearer to the coast Mangroves pushed from the swampy shoals fifty feet high. All along the coastal lines these cubic miles of sponge heaved, contracted, expanded, part with the tides, part with the animal life they harbored in incredible profusion and variety. With every contraction of the sponge thousands of entangled little creatures, minnows, crayfish, insects, worms and crabs were choked to death; with every expansion they sank, became fodder for the bigger animals. Huge carnivorous flowers were observed closing around mackerel sized

fish like a trap, squeezing, sucking their juices while farther down their stems shook with the bites of conger eels which in turn were attacked by sharks. From time to time the rubbery mass shook like jelly when one of the monsters, azelot-shaped, snake-shaped, turtle-shaped, broke through, wriggled to the surface, spouting, croaking, crawling along the heaving surface, ponderously like tanks.

There were dead monsters, too; blown up by gases, they hung like barrage balloons in the lianae, white bellies up; others the pressure had squeezed up head forward; walrus-like yet strangely human these heads stuck out, their bearded faces melancholy and quite blue. Horrible stench wafted from them and attracted giant vultures, horn-plated, reptilian, bat-winged only with a new plume of feathers, these dived from the rocks to gorge themselves with the putrid flesh.

Close to this horrible, this life-gestating and life-consuming placenta the advance units of the fleet had broken through, using the estuaries of the turbulent rivers, brown and muddy with earth for their approach. It was hard to find crews for the amphibious craft to take the scientists ashore; helicopters were out of the question because of the heavy overcast and the cyclonic electric storms caused by the nets.

Gideon Kyle and Hogstrand set the example; thereafter death-defying men and women volunteered; the vehicles, armor-plated with heat-resisting material, crammed with scientific apparatus lumbered up the rocky slopes; the jungles swallowed them. . . . For, incredibly to report, yet truly, tropical forests had shot up within the few months Greenland had been liberated from the ice and lay a-panting bathed in the fierce heat waves of the new suns. There were ferns and pappus and um-

brella-shaped papyrus tall as the redwoods of California. Most of the species were unknown to science. Matted they were completely overgrown with parasitic plants; liana and orchids which didn't take time out to drive leaves, which drove their roots like hyponeedles into the veins of their hosts, draining their lifejuice, using it to burst into gorgeous, fiery flowers until the tree trunks collapsed under their weight.

FLAME throwers had to burn a path through the entanglements. And then it was found that forest fires were devouring these moisture dripping jungles anyway. Sheet lightning from the Nets, electrical storms from the sky, birds fluttering with burning wings—they carried the flames. Pale the flames shone in the pink semidarkness under the luxuriant foliage gnawing at the resin-sputtering trunks until they crashed and the dripping masses of leaves stifled the flames in smoke.

After a day of these jungle expeditions it became clear to the scientists that their initial theories had been erroneous. No, this incredible life did not stem from seeds and genes of the pleistocean alone; paleolontic residues come to life under the stimulus of the new suns. Greater powers were involved, horrid powers, something without a name, something which could only be circumscribed as the "*Life-Force*" itself.

Of the amphibious vehicles, many never returned, nor did their crews. Terrifying reports said that some had simply disappeared in swamps; sucked in, although they were built to float. Others had disintegrated in a flash; the mysterious life-force obviously affected the atomic power plants. Yet, on the second day new vehicles, new crews set out, this time for the high plateaus as

near as one dared to approach the Nets.

There, with the machines parked on foundations of rock the scientists, sweating profusely in the super-tropical heat, had a first chance to observe the happenings on this miraculous new earth.

They never were able to couch their discoveries into scientific language proper; the reports were stammerings but this was their gist:

"The Turmalin - Nets apparently emanate a radiation which not only resuscitates germs and residues of live matter buried in the ground for millenniums, but fuses its substances in a manner for which we have no explanation. We have been able to observe and to take samples of phenomena as these:

"The departure of the glaciers has bared an earth saturated with bones and residues of paleolontic life, both animal and vegetable. Apparently under the influence of radiation these residues come to life and bake together in a wholly indiscriminate manner. The results of these gestations are like nothing the world has even seen. Around the dispersed bones of some prehistoric animal buried in earth-matter the salt-saturated earth curls up and 'organizes'. The organization, however, occurs in a wholly anarchic manner; the ribs of a skeleton may turn into legs, the jaws into pelvic bones, the neck into a tail and vice versa. In the process of 'organizing' the gestating processes absorb indiscriminately animal, vegetable and inorganic matter. Thus stones may turn into teeth, trees into horns, lianae into veins and arteries, live creatures like worms may become tentacles. We have found creatures, believable only through evidence of photographs and specimens preserved, which literally walk on their jaws, carry their heads on the ends of their tails, have 'organized'

living bodies like snakes for intestines, sponge-moss for lungs, plant-juices for blood, bullfrogs for heart-muscles. The radiation seems to be capable of transforming and enlivening all and everything. We have observed animate gallertic balls of transparent cell-matter slowly sliding and rolling down the hills. In doing so they picked up earth-matter like a snowball picks up more snow. While in motion the earth-matter 'organized' networks of veins; these began to protrude and organize limbs. The creature thus formed begins to crawl. Others get stuck in the mud and organize into a plant, driving roots and shooting out into branches. Sometimes also the animated ball found a layer of animal organisms, massed turtle-eggs, ants, caterpillar-nests; these it would absorb and use for almost anything from glands to hair.

"We have seen leaves petrified in limestone curl up under the radiation. With their swelling ribs they sucked at the protoplasm which washed over them. Saturated they rose like pancakes on the hotplate, split into new leaves, grew into bushes . . . bushes which to our amazement began to walk. Because the limestone underneath meanwhile had turned into the shield of some elephant-sized turtle. We've seen, and photographed, whole animated hillsides wandering cross-country, semiorganized like embryos with transparent, earth-filled bags which they dragged behind, which in dissolving nourished them until they broke down and became hills again, their food-supply exhausted. We've seen and have made motion-pictures of animated trees, thrusting at one-another with their branches, stabbing, penetrating their limbs . . . Until from coagulating resins they grew together and out of matted branches there shot up within hours a big Ginkho-tree . . ."

SOUNDBEAMED to London, Washington, Moscow, to all the new Babylons of the world such unscientific stutters were first received with derision as the ravings of maniacs. But later when the courier-planes brought proof irrefutable, the scientific scepticism turned to stupefaction. As on June 15th news was flashed that 65 per cent of the expedition's scientists had "disappeared," presumably swallowed forever by the Moloch of the protoplasmatic Greenland-world, Steinherz hastily called in another Moscow conference. There was no longer talk of widening the Gulfstream, of installing turbines into the Greenland power dams. Clearly an unforeseen emergency had arisen; from the offense civilization was thrown into the defensive. Hastily the two fleets were summoned back to their bases. With the Moscow laboratories way out in front, the scientists of all the world in fevers of excitement, unprecedented since the atom bomb they plunged into the problematics of the new mystery-powers fomented from volcanoes and the Turmalins.

Too late: on July 27th, 2172, the advance guard of the Greenland-monsters invaded Europe; it was over Bergen Norway, that they first arrived.

High up in the sky the flying Saurians streaked toward the bay, the fast vibrations of their bat wings, almost invisible, their legs paddling slowly and grotesquely for steerage. In a way they resembled those Zeppelins of the early twentieth century. As news of them was flashed over the radio the people of Bergen still were confident. There was their ray-umbrella; it protected the city and nothing could pass through it.

Minutes later lighthouse keepers were terrified by the sight of the monsters *breaking through the rays*. Obviously they had some kind of a protective armor or else some radiation of

their own which nullified the disintegrator beams. True enough, green flames burst out from those horrible crocodile snouts all along the horn-spiked spines. In pain the monsters roared or rather they whinnied with unearthly shrieks which shook the air; many people fainted in the middle of their head-long rush to shelters. Down into the fjord the monsters plunged to cool the fire in their flesh; they swallowed, smashing with their tails small ships. Horror-frozen stevedores along the waterfront observed that the beasts were crawling with parasites, lungfish and lizards and foxlike animals which drifted on the surface and crawled back into the flabby folds of legs and necks as their hosts dived up again. Groaning, still belching green flames from their nostrils as if they were being consumed from inside, the monsters climbed ashore. Under their dragging bellies the concrete buildings collapsed in rows. Dragging wide wakes of destruction behind them they transversed the city towards the hills. There they started chewing up the woods like grass; small summer-houses, bungalows and music pavilions, built in the shadows of the trees, they chewed up, growling with pain. These beasts seemed to be utterly famished, utterly exhausted, half blind and unconscious with a terror of their own. Many dropped dead right there in the outskirts with their teeth clenched around a last bundle of trees. Others dragged themselves for fifty, sixty miles into the rugged mountains; they hardly reacted to the dive-bombing attacks by gallant pilots who fired blast after blast from their disintegrator guns. Internal damage caused by reasons unknown tortured them far more; perhaps it was the cold in the air, the paleness of the sun, the loss of Greenland's life-fomenting rosy light. Tremors ran down their spines, from the

violent vibrations of their tails rocks broke; the giant shovels of their feet hurled tons of earth. The monsters sank, dug themselves into rock and earth. Then they stiffened and were dead.

PARTICULARLY nasty, freakish, unheard-of monster-medusae invaded Boston; giant balls, they rolled across the sea, a hundred feet in diameter. Passing through the ray-barrier caused their transparent bodies to be overrun with sheet-lightnings of gorgeous tints like those of soap bubbles. The glassy surface curled in pain; networks of huge veins stood out, body liquids spouted in profuse quantities. Then, in leaps, in bounds, in violent twitchings they hurled themselves on the city, crumbling the buildings, picking up their stones with the thick sweatings of their skins, trying to cover themselves over and over with layers of stone for bandage against the burns they felt. Rolling and twisting, elongating and contracting these destroyed two thirds of the city until they too dropped dead, not from the rays so much as from exhaustion—and quickly disintegrating left big swampy pools of greenish black so poisonous of emanation that Bostonians died as if under a gas attack.

In London the longest of all the monsters crawled up from the Thames estuary. These were sea-serpents with nearly seal-like, bearded heads. The length of some of them was later measured as exceeding eleven hundred feet. Many of these didn't even succeed to crawl out of the water; be it for lack of pressure or from the cold or because near the coast they had been attacked by waterbombs. Anyway, their bodies, normally of tank-car diameter, swelled as if blown up from within and bursting spilled the intestines. Only a few were

able to crawl as far up as Greenwich.

New York, for some reason, was spared, but the vicious flying reptiles seemed to gain new strength in the southern sun and they devastated Miami together with all of the Florida coast.

Gradually, as catastrophe after catastrophe was reported to headquarters—martial law had of course been declared all over the civilized world—the pattern of these invasions and the nature of the destructions they caused became known to the leaders of the world; and likewise the appalling failure of the known devices to combat the plague.

High flying scouting planes relayed the news that Greenland was one vast battlefield, spouting life and swallowing life in endless battles of survival. They also stated that the cutting of the power-cables from Iceland far from bringing any relief, had merely thrown the monsters into wild confusion. With the Nets' radiation slowly dying out the monsters were deprived of the magnetism which held them to the spot. It was chiefly this ill-considered step of cutting the power cables which had caused the mass-scramble of the monsters in all directions of the compass rose.

After this had been made clear the cable-layers of Hogstrand's and Kyle's fleets were ordered out to sea to respile the cables; it helped a little but not much. The monstrous life-force received new stimulus; the savage beasts attacked one-another on sight; obviously the invasions of Europe and America were caused by the flight of the *weaker* brethren amongst of giant devourers, a circumstance which explained the state of exhaustion in which they arrived.

In an attempt to amputate the horror at its source bomber-squadrons dropped some atom bombs into the horrible sea-

wall of organic matter around Greenland. This had to be abandoned when the ashes of this atomic disintegration began to rain all over Europe and America. For it was discovered that these ashes just as the bodies of the monsters themselves contained a *poison* more horrible after the death of its carriers than the destruction they caused when alive.

Even before the ashes had begun to drift in over the European and American skies the Senate had ordered the ray-umbrellas shut over their cities since they didn't kill the beasts but merely hurt and infuriated them. Old fashioned artillery had been wheeled out of the arsenals instead, had been used with telling effect in a few places; some monsters had been blown apart with one single 155 mm shell.

But dying these had spouted the huge jets of their blackish blood across city-blocks; more forceful than firehose they had smashed windows; in some cases people had been sprayed by this blood and immediately, horribly the poisonous nature of this blood manifested itself:

The part of the human body which had been sprinkled; within a second erupted in a cancerous, monstrous galloping growth. Like a balloon the limb was blown up; in swelling it drained it shrunk all the rest of the body. With the impact the victim lost consciousness; in ten seconds the palpitations of the heart ceased, an end to the horrible moans as by the surge of their own organs the sufferers were garrotted from within. The spongy excrudescences exceeded many times the body's original size. With their eyes bulging friends, relatives witnessed the arm of a beloved one hideously expand across the bed, across the room and all his body curl up to embryo or shrunken-apple size. There were revolting sights of human heads bursting through roofs of build-

ings with ramrod-stiff spears of hair, standing there, swaying above the spars, house-sized Jack-in-the-boxes, saliva-dripping, a horrible grin in the pumpkin-like, the pulpy face.

THREE were examples too of monsters hit by artillery-barrages out in the wilderness, of monsters which in dying rolled down slopes and spilled their evil blood across settler-huts and cabin villages.

In cases of this kind men, cattle, farm equipment, chicks, dogs and the very lumber of the cabins melted into one big placenta, gestating, foaming like overboiling milk to weird, unimaginable shapes with spokes of wagon wheels piercing through spongy masses of human flesh and gorgonic manes of horses, their hoofs still weakly pounding the air in death, fluttering in huge banners over the barns.

Discovered as it was too late, the ravages of this poison took frightening proportions when weeks after the atomic bombardment of the Greenland coast the dust of the life-force began to settle on Siberian cities as well as on those of Europe and America and enormous tracts of the countryside. Animals grazing on meadows sprinkled with this dust were caught by their tongues. The tongues mushroomed, couldn't be retracted into their gaping mouths. Bleating, moaning, trying to bite, to tear themselves free in vain, whole herds succumbed.

In the beginning, before the effects of the poison were fully known, the armed forces of the city-states had also resorted to the laying of minefields where the monsters approached. Blown to bits it was found that the ground fermented all around; foaming up it uprooted trees which as if alive walked swayingly across heaving ground till at the rim of the explosion area they

slowly tumbled down. Decaying limbs and torn-off parts of the monsters were quickly sucked into the ground, formed hillocks. Opening these scientists found crystallinic formations inside, nests of Turmalinneedles, even precious stones like sapphires, rubies, amethysts . . .

From all over the country-side fear crazed primitives, natives, settlers, pioneers, fled toward the New Babylons, assuming, vainly, that within the rings of their ray-umbrellas there would be safety.

In this hour of Civilization's despair; October 2172 Steinherz called in the third Moscow Conference.

CHAPTER XV

The Third Moscow Conference—Living Towers Defend Civilization—The Cities Go Underground

UNDER the impact of the Monster-invasion chaos and panic had broken out in many city states. Ruthlessly, with fists of iron these had been stamped out by the rulers of London, Moscow and Washington. Wherever local élites showed themselves incapable of keeping their own house in order, they had been replaced by commissars, the formerly ruling families thereafter were liquidated. With savage delight the élite-guards had punished whole categories of scientists, who like educators, sociologists, and philosophers had recommended the Greenland-Liberation as a humanitarian act for the benefit of backward-peoples. As "enemies of the civilized peoples" these groups now were liquidated.

Hence it was that only six rulers participated at the third Moscow Conference: Steinherz "the Terrible" and Alva Wassilev who between themselves had become the absolute dictators of the vast Eurasian continent which now

extended from the Elbe-river eastwards. Rutherford, formerly chief of the London-Admiralty, now dictator of all British city states; he had made Rogge, the old cynic who seemed to be possessed with eternal life his deputy on the Western European Continent.

Atlanta Mercator, formerly of New York, still a drug-addict, nevertheless still beautiful, had used the undamaged military power of her city-state to conquer first the devastated cities of Boston and Philadelphia and finally Washington. She and Urtubi, the Buenos Aires dictator were now undisputed rulers over the crumbling civilization on the American continent.

The meeting deep down in the underground Steinherz labs started off like an explosion. These men and women who had not succumbed to the horrors of the Monster-invasions who on the contrary had used them as their steppingstones to power absolute—they had lost all human fears. Bad tempered old Rogge burst into the auditorium like a cannonball:

"Victory, victory!" he shouted like a barker; "Greenland is liberated from the ice! Civilization has won! We have created a new Continent! Congratulations Steinherz; I suppose we should all go down on our knees before you for having made for us this darling Continent with its cute little pets!"

On the far end of the round table the "Terrible" did not condescend even to frown. It was Alva Wassilev, the genetics-expert who flew with a fury of her own into the old man's face:

"Sit down old fool and shut your trap. The monsters probably spurned you for breakfast because you're too tough and decrepit; you'd cause indigestion even for a tyrannosaurus. Why are you here at all, wise guy? Your reactionary gibberish makes me sick . . ."

Rutherford pounded the table: "Ladies-gentlemen, quiet please! Hurling of invectives leads us nowhere. What's done is done; we are here to discuss the situation calmly; to find a way out; let us then proceed."

Urtubi took the word: "The southern hemisphere fortunately has been spared so far. I'm holding the ramparts of South America and propose to do so in the future. Why should not the London government remove its seat to South Africa? Let Atlanta Mercator take Australia, New Zealand, the South-Sea islands; who cares? The only possible solution I can see is to order an orderly retreat, abandon Europe, abandon North America—"

The voluptuous Wassilev-woman shook her fists:

WHAT is this I hear—retreat? Abandonment of our positions? To beasts? To dumb primeval monsters of the Pleistocene? What is it Man has been fighting for ever since Neanderthal: for the conquest of nature. And we *have* conquered. Now by way of a sneak-attack nature stabs us in the back. And like a cur you propose to sneak away instead of fighting back. Oh, you're despicable; you're not worthy that the new man-made sun should shine into your face."

Steinherz slowly arose. The guests were amazed at the changes which had come over the man. His face criss-crossed with deep erratic lines looked nearly as insane as one of those expressionist portraits of the 20th century. He was unshaved and his eyes burned red as if for weeks he had gone without sleep. His voice sounded harsh and cracked as he said:

"Who says that the liberation of Greenland was not a victory? It *was*. It was the biggest victory over nature which Man ever won. I'm proud of it.

Proud to have contributed my share. You do not seem to understand the meaning of this victory, nor how to harvest its fruits. I didn't call these monsters; these are freaks of nature; mere accidents. I hate them. If you could feel like I do you could not rest nor sleep; day and night you would burn with the white-hot fury and the shame that nature can do this to us in the 22nd century. But then I seem to be almost alone in this great hatred. All alone I have toiled and racked my brains—yes and Alva over there—and of course my whole staff—to find a means to combat these outrages. And what's more, I think I have found it. No I won't go into details now, but: give me a month, give me a fortnight, give me only eight days and I will put the New Weapon into your hands which will wipe this pest off the face of the earth.

"Meanwhile however; the fruits of Civilization's victory—ripe do they hang before your very noses! Why not pick them? What was it that we wanted from the Liberation of Greenland in the first place? Have you already forgotten that it was *elbowroom*? We wanted to be rid of all those human misfits, those primitives, those malcontents, savages, settlers, pioneers, shamans and whatever else the creature calls itself. Now they flee from the wildernesses to our cities for *protection*; this is the golden hour; they hate us, we hate them. Personally I hate these saboteurs as much as I hate the monsters! Ergo! what are we waiting for? They're given into our hands: let's be Dragons ourselves, let's wipe them out, liquidate them!"

Heavily panting he put both thumbs of his golden hands down; the diamonds flashed brilliantly in the eerie, crystal-filtered light. He sat down.

Atlanta.Mercator, the emotional byna-

ture and heavily drugged as she had herself to sustain the strain of the meeting, Atlanta the beautiful, "gem of the ocean" as her admirers called her, jumped up:

"This is it!" she shrieked; "Steinherz has it. That's the right idea. Drive the Devil out with Beelzebub. Let us be Dragons ourselves. Take vengeance on nature, vengeance for our cities, vengeance for the destruction of our way of life. Don't you feel it burn —this hatred? Doesn't it sear your hearts? There's only one man in this world to whom I bow in humility. There's only one who's a hero: There he is: Steinherz! Savior of our civilization, we greet Thee!"

This was the turning point; practical plans were discussed after that but the fundamental problem was already settled. Shrinking from no means at its disposal civilization would take up the titanic fight.

THROUGHOUT the terrible winter of 2172/3 "savior-groups" formed in all the New Babylons of the world. Composed mostly of élite-guards these set out to ruthless extermination campaigns among the fugitives. Terrible to report, but true: it was the women dictators who excelled in this slaughter. Atlanta, the darkly beautiful who, drug-crazed, called herself "Kali" now, screaming that she wished she had a thousand arms with which to "bless," to kill; and Alva, she who had changed herself into a strange creature.

With shocktroops of fanatical followers these two flew from city to city wherever they learned that outlanders had taken refuge in the vast caverns of the Mamlock-factories. Then, with all lights put out inside the caves these two would shout over the amplifying loudspeaker systems things like:

"The monsters come! The dragons

are there! They've broken through the tunnels; they're crawling in!"

Into the panic stricken, screaming masses they then hurled themselves with tele-heaters, "brooms," disintegrator tommy guns: "How do you like this dragon, suckers, its name is Lamia and it bites." "Come on scum of the earth, come and be liberated in Kali's death-embrace."

Terrible, in a sense more terrible than the monsters in their utter perversion and depravity these two scourged the already groaning lands.

The bulk of the "saviors" however consisted of technicians, architects, engineers, mining experts who undertook the gigantic task of Civilization's digging underground. Experience with the already subterranean Mamlock factories, laboratories and armament plants had shown that reinforced concrete roofs of 30 feet thickness and over were absolutely monster-proof.

Thus, independent as the cities were from outside food-supplies, all one had to do was to multiply already existing establishments. With the tremendous machine-power at the disposal of the technocrats this was a relatively easy task; it had been done to a degree as early as in the Second World War. Construction proceeded in stages; first all remaining laboratories, second all needed industries, third all the administration, fourth the amusement centers, fifth the needed, and hence desirable working-population: one by one these groups went underground. Giant air-conditioning systems had been installed, tunnels had been drilled to the salt and coal-mines whence came the raw materials for the food-supply; whole rivers too had been piped underground. Over-ground sections of the cities were evacuated; the millions and millions of cubic yards of excavated rock and earth were heaped on top of the giant, vaulted

bunkers for additional security. Started in late October the work proceeded so fast under the whiplashes of emergency that by February 2173 Moscow, London, Washington and nearly all the other centers resembled enormous pyramids—magic mountains made by man.

"Away from the Earth—it's dangerous" was the new slogan which fired the masses to supreme efforts in digging in. Life underground was almost the same as the old life in the terraced, light-flooded "living-machines."

ONLY it was more fascinating, more intense to live under the artificial suns of the neon-lights, to breathe the oxygen-enriched air, to be moved automatically along endless-belt sidewalks to the Plazas where the "better-than-nature" parks had been installed with their mathematical crystal-trees, weird and abstracted looking algae and the mushroom-lawns where one could lie down softly as on sponge-rubber mattresses. Inspiring also was the contrast between the perfect security one enjoyed underground and the television-screens which endlessly showed battles of the monsters with all their groans and grunts and vicious hissing. Audiences laughed and applauded when a flock of Pterosaurians were seen, vainly scratching away and hacking at the rocks of the "magic mountains." Talk was that soon the Senate would establish zoological gardens where the fantastic creatures from Greenland could be viewed with the live exhibits and in perfect security behind plexiglass-walls, ten feet thick.

Although the old division between day and night had become absolutely meaningless, it had been maintained; the "fall of night" was eagerly expected by the masses, the hour when the huge Tom-Toms were struck in the television-studios to announce the begin-

nings of the circus games. For these were the new, the sensational amusements which the magic mountain-dwellers craved and which were greatly favored by the Senate because they provided emotional outlets.

Essentially these games were revivals of the old Roman circus. They had started modestly with bullfights in the Spanish manner: however lions, tigers and grizzly-bears were imported from the wilderness overground. Gladiator-schools were sponsored by the television-companies; rumor was that these men and women were recruited from conspirators against the senates and would-be-assassins and that it was to escape torture that they put up such good and desperate fights with the beasts. Likewise the technique of these battles had been greatly improved upon as against Roman times. The vast vault of the circus remained in total darkness. The fighters however, men and beasts alike had been sprayed with luminous paint; also before the battle started they were given intravenous injections of luminous solutions. The result was that the fighting bodies shone like jewels and the phosphorescent blood sparkled like the stars as it started to spout and flow. These shows fascinated and excited the circus crowds; often in the darkness around the ring fights broke out and murder was committed. Elite-guards, invisible under their tarncaps constantly were on guard with the "nightsticks" of their hypno-needles ready in case of emergency.

These games however and also the subterranean dancehalls where in darkness the couples sprayed with various luminous paints were seeking for new sexual stimulations; all these were merely diversions thrown among the masses to keep them satisfied while the scientists worked under the highest

pressure on the new defences against the monsterworld.

The fact that the Steinherz-laboratories in Moscow were way and ahead in the development of these defences was due in part to his pioneering work in crystallography, but it was also due to an accident.

The "Terrible" had not lied when at the Conference he stated that already he held the solution of the problem in his hands; his plea for only a few weeks more time was not an empty promise. A remarkable incident had occurred in the northern port of Archangelsk; there an unknown soldier had boldly attacked a monster of a sea-serpent type with hand grenades; he had been hit on the left underarm by a drop of the monsters blood and miraculously he had lived to tell the tale.

What had happened was briefly this: A second after he was hit his arm had erupted into the familiar monstrous cancergrowth. There had been no pain, only a feeling as if his whole body were galvanized by electricity; the sensation had been delightful, something like a combination of a bubblebath and an euphoria shot. It had made him weak in knees, desirous to lie down and enjoy some wonderful dream. His eyes however had been riveted to the monstrous swellings of his arm and he had been appalled. He had felt, (all this within a second) that he must get rid of this monstrous annex to his body at once and at all cost. So he grabbed his sheathknife with the right and in blind abhorrence cut at his own arm. He had not felt any pain from this; it had been like lashing into some foreign chunk of despicable flesh.

Luckily he found the elbow-joint; the arm came off. He kept on hacking away at the flesh near the shoulder; then terrific pain threatened to overpower him; with a last effort he had

tied his sleeve around the stump; then he had fainted away.

RESCUE squads had found him after 24 hours. Brought to Moscow by plane the living miracle was operated upon by the greatest surgeons Steinherz could summon for the task. For even after the self-amputation the terrible poison had blown up the remainder of the arm into a bulbous, bag-like whitish mass. Surgery had to remove the whole left shoulder under extreme precautions, this because the poison had drained the whole body of the victim and the composition of his blood was so strangely altered as to make transfusions almost impossible. Once a strapping sixfooter of Scandinavian peasant-stock the man was shrunk to the size of a seven year old child, all his bones had softened to the gelatinous substantiality of a ligament.

Placed into a waterbed, nursed along with every conceivable care he very slowly recovered. Strangely enough his brain had not been affected although his thought process and his speech were slow. For all the rest he looked terrible; embryonic with his oversized cadaverous head and shrunken, curving limbs, his liver-colored blackish skin and the deep sunk eyes which had turned from blue to black. Greatest difficulty in his recovery was dieting. With wolfish appetite he consumed great quantities of the best building-up foods science could procure; yet nothing seemed to agree with him very well.

In the trance-like state in which he lay most of the time he used to complain to the doctors; from all over the world the foremost medical scientists had trooped to Moscow even at danger of their lives to examine this miracle; in his dreamy voice the victim would stammer:

"Something's wrong. I need some-

thing. Why don't you give it to me? The Light. I want the Light . . . The Light which danced before my eyes as the arm swelled up. The monsters have it. If I could only get at that Light I would get well again."

Steinherz spent many hours at that unknown soldier's bed. Slumped in a chair he watched him, stroking his beard, frowning, groping with thoughts. One night Steinherz suddenly exclaimed: "Why not? Let's try it. Maybe this is what he wants."

He ordered a squad of doctors to take the patient to the subterranean storage-caves near Stavanger Norway where the reserves of Nets were stored which the city states had confiscated from the Kyle and Hogstrand fleets. Small parts of these had long been shipped to every laboratory in the world; all kinds of tests had already been made, but not this one.

Even as the water bed was being rolled into the elevator shaft the patient began to smile with an expression of unspeakable happiness. As he was being installed between the huge walls of plexiglass behind which the Turmalins mysteriously vibrated and the big bubbles rose through their bath of heavy oil, the unknown soldier tried to raise himself:

"This is my heaven," he mumbled, "this is paradise."

Within four weeks,—those who attended to him had to be changed every four hours—he was restored to health. His figure had changed; it was now very slender, but almost the size of a normal man. Eyes had reverted to blue, the hair grew very long and soft, straw colored where formerly it had been brown. Likewise the regenerated skin was extremely fine, almost transparent. When he spoke it was in exalted tones and in the manner of seers; exalted, incoherent. It never became

known who he was; amnesia had rubbed out memory before his accident.

Steinherz had him secretly moved back to Moscow where he kept him in isolation and under closest surveillance in his laboratory.

Basically, Steinherz felt, the problem was solved. The Turmalin-nets charged by the Iceland-volcanoes contained transsubstantiated the blood of the earth itself, the fiery blood whence once had sprung all suns, all stars within the universe. It was the Life-Force pure and simple. Wholly anarchic as it shown itself when first unleashed, a way, a means had now to be found to get it under control. Day and night Steinherz worked; so did the army of his collaborators and technicians. Desperate like a savage who finds himself confronted with the inscrutable powers of the elements, Steinherz had hung over several of the most vital departments the death-penalty for failure to get results. Daily he flew over to the subterranean storage-vaults of the Turmalins where the mass-experiments were organized like assembly lines: with plants, with animals, with human guinea pigs; (settlers mostly who were hunted for the purpose like wild beasts).

NOVEMBER 9th he proudly announced to the scientific élites all over the world: "The Moscow laboratories have discovered the secret weapon which will liberate civilization from the monster world. Every city welcome to our formulas. My assistants will render every assistance in the production of the new weapon. Its name 'The Living Towers.' "

Never had the world seen anything like this, the latest the most horrid, at the same time the most primitive weapon invented by Man. In the Mediterranean, in sheltered island bays

of the Caribbean, seldom if ever reached by the monsters, huge ships were assembled, the biggest which had been ever built; squat, low, enormously broad beamed they resembled pontoons. Apart from the propelling machinery they were filled with sea-water distilling plants and pumps of huge capacity. On these ships for platforms the Living Towers were being erected; two hundred of them in American waters, one hundred and eighty in Europe.

A grate of Turmalin-net was laid on and fused with the decks. Into this rich topsoil was poured. Agitated this formed a foaming, gestating layer some twenty feet thick; a placenta into which now great masses of plantcells were thrown. These fused with the earth and "organized" under the stimulant to matted growths similar to that of the organic seawall around Greenland. Onto these "cultures" animal substances were heaped in large quantities —glands, hormones, intestines, naturally absorbant organs such as stomachs, lungs, kidneys. Under the carefully dosed radiation from below these too fused with the bottom-layers of the placenta into a frothy, life-bubbling conglomerate. The devastating powers of the Life-Force became manifest for the first time to the armies of workers who supported these vast bio-chemical experiments. To slip from the towering scaffolds, to drop into this rising yeast of Life was to be swallowed and to be dissolved by it. This force, like fire was indifferent to the substances it consumed, be they soft or hard, live or dead. From control towers and hovering planes the biochemists, physicists, crystallographers and biologists watched the operation.

Live bodies were now lowered into the mass from cranes; whole herds of cattle and sheep at first. Up to the

middle of their bodies these sank into the mire kicking, moaning, bleating, trying to extricate themselves. After a few moments their strugglings abated; their feet, their bellies were caught as if by suction-cups. Exhausted they lowered their heads to sniff and then the heads were caught. Their lives ebbed fast, yet they did not die. Slowly the heart continued to beat, lazily the blood continued to pump through their veins; only it was no longer their blood alone but also the juices of plants, the juices of animal organs. Cancerous, parasitic growths had driven spearheads into the body-cavities of the implanted life, not altogether killing it, but using it for the collective growth.

The Living Tower named Moscow (all the living towers were named after the cities who sponsored them and had them built), stood under the supervision of Steinherz himself. After the layer of the living tissue had been embedded, the tower's top-level now stood at approximately a hundred feet, and Steinherz had the unknown soldier brought over from his labs. As he and the pale man with the flowing yellow hair stood on the high scaffolds, Steinherz asked a question:

"Will you be silent about those things which happened to you?"

The unknown soldier looked straight into the "Terrible's" face:

"Never. I'm going to tell these things to all the world."

THE TERRIBLE smiled. He motioned the élite-guardist who invisible under his tarncap had stood behind the prisoner. The slender figure dived, overturned in midair, landed feet forward in the mire of foaming flesh. He howled with the fear, then stopped all of a sudden as he felt the Life-Force licking up his legs. A strange radiance

lit up his face; his arms he spread out as if he were hanging on a cross.

The Terrible looked down on him, the frozen smile still on his lips: "You asked for it," he said, "not that it makes much of a difference. You have been touched by the monsters before haven't you? You live by the grace of the Nets anyway, don't you? So then you probably feel quite at home and comfortable down there . . . Besides you have the great satisfaction of serving civilization. For your body will nourish the great warrior whom we are going to implant on top of this. Maybe your kidneys will serve him, maybe your stomach—who knows . . ."

From the depth of the pit the wavering voice of the unknown soldier wafted up:

"As I see you and your tower Steinherz, I praise the might of God who has created this earth. You'll never conquer Him, you'll never conquer me. I'm not afraid. Let my body be dissolved; let ten thousands be. That won't help you any in the end . . ."

While he still spoke the unknown soldier was sucked deeper into the mass while he still sang the hymn in praise of the power of the earth. His hands were caught; they mushroomed, melted, fused. His vertebrae drew spikes, the basket of his breast was torn, expanded by the spears of penetrating parasites. He lost consciousness; the mire swallowed him.

Thousands upon thousands shared his fate; most of them were savages and settlers, but among their numbers there was also De-Witt Baker, the gentle women who had retired from her Washington office to a cave in Northern Ireland. She was immersed into the Living Tower "London." Clark Powell, the old-school-tie diplomat, who bore the unfortunate burden of a conscience and was rounded up by Atlanta Mercator

from his New Mexico retreat; he was thrown into the Living Tower "Chicago," at anchor near Bermuda, just before its Warrior was planted in.

For in the culminating stages of the construction the armament of the weird battle wagons was installed: the living man—*the Giant*.

Only members of the ruling elites, only volunteers, young men, preferably athletes, carefully screened and tested for physique and loyalty, were selected for the supreme task: Civilization's defense against the monsters. With suicidal tendencies prevalent amongst the best there was in 22nd century society, the number of volunteers exceeded a hundred times the 380 positions which were open to them.

The implanting, the rooting-in of one single human being selected to become a Titan took weeks and even months. As the human being was first caught around the waistline by the glass-tongues of towering cranes and lowered to the top of the living pyramid, he sometimes cried with fear and he looked infinitely small and lost within the tower. Immersed in the placenta of Life-Force he started growing at an incredible rate. Sunk into the quagmire up to his hips his lower limbs were pierced, were rooted by the fomenting, the up-driving organs of the live matter; nerve strings, blood strings, veins and arteries of the Life-Force, hormones, glandular substances, with thousands of roots, a matted maze of channels, all leading into his organs, his body-cavities—they pushed his growth.

Within a week the warrior grew from six feet to a hundred; fully grown he towered six hundred feet above the waterline. But time and again the pushing of the Life-Force had to be interrupted, the current from the Turmalins cut off. Danger was forever present that the extraordinary cell-expansion

and cell multiplication would damage higher organs such as eyes and brains. Whenever the victim's sight was dimmed, when speech became incoherent and the huge head began to loll in dizzy spells, the current was shut off; damping materials were thrown over the Life-Force fires. These operations were of extreme delicacy; science had to resort to psychic stimulants to keep the morale of the warrior up, his will power to stay awake and keep alive. Friends, relatives, best girls were summoned from their homes. Through amplifying loudspeakers they talked to him who had been a friend, a brother, a son and now was a mountain trembling, shaking in his overpowering growth.

Hovering in little helicopters in front of the giant face which looked unhappy, its forehead frowned into deep gorges, the tiny little girls in their gay bubble clothes would promise them anything . . . That they the girls would become giantesses themselves, that they didn't mind the boy's centaur shape, that they would marry him nevertheless, that he was their hero and all the world talked of him . . .

UNTIL finally the bearded monster-man opened his eyes, huge as the biggest lenses man had ever made and tried to focus them on the little insect which flitted near his nose until the reddish mass of the tongue began to loll in the abyss of the jaws and slowly, very slowly words formed in stormy gusts which hurled the little helicopter back:

"Yes—Darling—I'll—keep—going—if—you—wait—for—me—"

Some girls fainted when they saw the big, the football-sized teardrops running down the cheeks of their lovers. Others came in actual danger of life, and one at least was lost when a giant hand groped for the little plane. Sci-

entists, however, were jubilant over these signs that brain functions and interest in life were reawakened, had remained intact; they threw new switches to drive the Living-Tower still another ten or fifteen feet.

As they were nearing completion they were dressed in furs. With their activated cell-matter absorbing, fusing all organic matter easily, live sheep, rabbits, eiderducks, other furbearing animals were simply pressed with glass hooks against the Titan's skin. Fused within minutes, their body juices, bones and intestines were absorbed by the cells of the skin; the fur stayed outside as if transplanted there.

In the last stage of the construction the armament was installed into the living towers and it was extremely primitive: in fact it was almost exactly the armor which the knights of yore had worn. Steel helmets with pivoted visors, breastplates and backplates, shoulder guards and steel gauntlets with short swords welded to them permanently. All of these had to be individually made with the huge trip hammers pounding them out from the best stainless steel in the new armories of Sicily and Malta, of Cuba and Trinidad. The warrior's shield, however, it was not given into his hands. Heavily insulated against his body this shield made from Turmalin-Net was hung from his neck; down his breast it flowed right to the base of the Living Tower; its purpose not protection but to act as a lure to the monsters which craved its radiation. It made the Living Tower stand out in a reddish glow at night.

Rarely and only during the initial stages of their growth were the Titans fed. Mobile swimming cranes tipped buckets full of body-building foods into their mouths, several tons per day during their waking hours which were rare. Later feeding by mouth was replaced by

the network of umbilical cords which placenta had organized, had driven into the Titan's lower body. Turmalin-activated water circulated continuously through the placenta's matted roots by the big pumps inside the Titan-carrier ships; in its turn it fed the placenta.

Some thirty Titans had died during their constructions March 9th from the West Indies, from the Mediterranean, the remaining 347 Titan Carriers set out, course set for Greenland.

Orders were flashed from Moscow, center for the "Operation Titan" to the remaining remnants of the Kyle and Hogstrand fleets to cut the power cables between Iceland and the Greenland-Nets. This had to be done in order to create a Turmalin-disunity among the monsters, to attract them to the bait of the Titan Carriers and their destruction.

To his uneasy surprise Steinherz learned that from Bornholm and the Firth of Forth the radio stations of the concentration camps gave no answer. Investigators sent to the spot discovered only remnants of the crews; the insane and the sick. All the rest, including the two leaders of the old expedition had somehow slipped through the cordon sanitaire, had disappeared in the wilderness. Obviously the prevalent state of chaos and confusion in Civilization's affairs had facilitated their escape. Under the protection of the Titan carriers new cable layers dared to go as far north as Iceland and cut the lifestream off.

THE epic battle opened up early in April, 2273; that month and throughout most of the summer civilization in its underground cities went agog with an excitement so great it halted even the circus games for lack of interest. Hidden below the decks of the Titan carriers, using armored peri-

scopes and telelenses the television cameramen were able to give blow-by-blow accounts; pictures which surpassed all limits of the imagination and drove the home cities of the Titans frantic with hero-worship.

The reels would show the pink dawn over Greenland—there was again night and day since the radiation of the Nets was slowly dying away. They would show the mighty Titan carriers a-swaying in grey mists; the Living Tower in its slow awakening, rubbing his eyes, stretching its arms, yawning with its visor open. Then they would show the radar operators deep in the belly of the ship; their beams reported an approaching flight of the Ptero monsters. Then the command post at the very center of the ship; the captain giving orders; technicians and scientists rushing to their stations, manning the giant pumps as now there circulated through the Towers system huge quantities of adrenalin, heroin, cocaine to make him fierce for the battle. Encircling the towering head up in the clouds with helicopters until the very last moment, the daring news reporters showed the changing expressions on his face; how the giant forehead frowned, how the jaws set aggressively, how the eyes flashed as his earphones in his helmet gave him the news of the approaching battle. How then he closed his visor and did some shadow fighting with his sword, probing his muscles. And then, out of the steamy, still rose colored clouds the hideous monsters dived towards the Turmalin shields. And the whole living Tower shook as it went berserk with the fury of nature, with the frenzy which the drugs had instilled in him. Out flashed the sword and cut and slashed, the monsters' groans in dying, dampened as they came over the television sets caused mass panics in the cinemas; this and the awful hiss-

ings, the twitchings of death-agony and the streams of gore. This and the sight of the giant fingers of steel tearing the wings out of the attackers in midair, tearing the intestines out of their bellies, holding them high and then swallowing the smoking, dripping masses. For in running berserk the living Towers became completely bestialized . . . Terrifying was the roar of triumph, the reverberations of their pounding fists against the armor plated chests after the victory.

The magic mountain city of Miami went mad with celebrations after having witnessed its home-city Titan slash through an encirclement of sea serpents which throttled him from his helmet down to his base. Paris in turn shrouded its caves in black for three whole weeks because its Living Tower had been attacked by an heretofore unknown species of flying foxes which overran him completely, entered through narrow openings in his armor, gouged his eyes out so that he died in terrible agony.

Thrice was the Tower New York mentioned in the daily communiques because single-handed he had torn to shreds 120 miles of the terrible organic-matter sea wall around Greenland, which was the monsters' main breeding ground before he too, Atlas Mercator, Atlanta Mercator's son, fell in the battle against a crocodile-type saurian which attacking from below had gouged its way up to his liver. After every such battle terrified monsters fled to either Europe or America where after some ineffective devastation of the wilderness they quickly died. Of the Titan carriers 36 were scuttled on the high seas after their heroic warriors had fallen in battle or else been gored so grievously that the tons of penicillin which doctors sprayed from airplanes were of no avail.

For months, even after the current

from Iceland was cut, the Nets continued to radiate; for it was impossible to approach them; bombed down they merely were sucked into the foaming earth and continued the monstrous gestation. Only very gradually did the battles abate; by September, 2273, a strange and unforeseen phenomenon began to manifest itself on the Living Towers. No matter how stimulants and Turmalin currents were increased the Titans tired, their lives ebbed fast, their enormous heads sank to their breasts; one by one they fell into a coma, could not be roused. With unconscious moanings, faster and faster they died. Since the deterioration of these enormous corpses seemed likely to cause plagues which would be carried by the Titan carrier's crews all over Europe and America, all ships were scuttled beginning October in waters of the Arctic sea.

CHAPTER XVI

Twilight of the Titans—Science Reverts to Black Magic—the Saint and the Devil—the Titans' End

HISTORIANS have likened those terrible three years from 2273-2276 to the "Fimbulvitr" that old Voluspa-prophecy about the end of the world. There would be, according to the Voluspa, three successive winters without spring or summer or sun. There would be a Sword-time, Wolf-time, Storm-time with fires and waters devastating the sagging firmament of the earth, catastrophe following catastrophe . . . Man would sink to the utmost depths of depravity and bestialization; the terrible phantom of the serpent would emerge . . . Men would walk through the valley of death and the eagles devour their corpses . . . Until finally the waters of heaven would

drown the fires of the earth and the great Master would appear . . . He, the All-Powerful by speaking the secret runes of his law supreme, would end all strife on earth forever . . .

As one looks back upon the horrors of those years there is small wonder that Man thrown back into a state of barbarism dug up these old sagas from racial memories. In fact this was a necessary step, a gestating period which had to precede the reawakening of religiosity.

After the Nets over Greenland had exhausted themselves the monster-invasions created, the Living Towers, were at the bottom of the sea. But Civilization in its "Magic Mountains" did not return to the face of the earth. Its terrible tyrants saw to that. These men and women, holding the secret of the Life-Force in their hands, considered themselves as completely autonomous, no longer bound to *any* kind of laws. All of them had participated in the battles of the Living Towers, had been in command of legendary fleets. They couldn't forget the experience; like satellites their minds rotated around and around the fantastic—the protean force they mastered. To their capitols they returned with boredom and with loathing against those weak two-legged little ants, their subjects.

These six, so closely allied in the monster war, terribly isolated by the gulf of their power from all the rest of mankind, couldn't stand to keep apart for very long; they soon called another conference, this time in London. It was the weirdest assembly in all history for in the meantime they had used the Life-Force in their hands on their own bodies in aggrandizing, terrifying experiments.

Atlanta Mercator at the head of the table looked like the Goddess of Destruction after whom she had named

herself. Sparkling with jewels, dressed in gold she fingered nervously her drug-pouches, the arrays of her vanity cases, her hair, her innumerable ornaments with the hundred beautiful arms her scientists had transplanted from neck to hips under the threat that she would choke them to death if they failed in the task.

Alva Wassilev, the hermaphrodite-Lamia she called herself now, the Russian ruler, roared with laughter at the sight of "Kali's" latest body style. "That's grand," the lusty woman cried. "You know, personally I've been struck by a different mood. I got bored eating, drinking, digesting all by myself. Why not delegate these undignified functions, I thought to myself; we have the power to do it; nothing is impossible any more . . . So then I got this thing here."

PROUDLY she pointed to the giant elephant-turtle to which she had fused herself. Heavily the beast walked her into the hall; she did not direct it—fused with her body it obeyed her will.

Urtubi had used no airship and no plane; he had come under his own wing power. They hardly knew him at first; of his old shape he had only kept the head. Foreign and strangely like a trophy on a wall it looked at, the end of the bald neck of a giant Andes Condor into which he had transformed himself. (Ever since the construction of the Living Towers it was known how the life-force would completely melt the species.)

Rutherford, poor Rutherford, was not among those present; it was known that enroute to the meeting he had committed suicide in his plane. Ever since the tragic end of his last fleet he had suffered from attacks of melancholia. But the most fantastic figure of all was Steinherz. Ever since his return from

the Greenland battles he had been engrossed in alchemy. The old symbolisms of "Salamanders" and "Red Lions" had led him on to heraldry; following the whim of the hour he had transformed himself into the symbol of intense watchfulness: He was a griffin now, very artfully composed, half eagle and half lion with a pair of wings.

The only one who came in human shape was the aged Rogge; he looked very decrepit and pale; nobody knew that he had been sick in the plane and vomited at the sight of a "Living Tower" which had failed to sink and drifted South into the channel, its Titan slumped over and dying from starvation after the crew had left and the pumps ceased to operate.

This was no longer a formal meeting as in the olden times of the bestialized tyrants of the world each shouted as fancy motioned him. Kali, the Goddess, began:

"As long as I can remember we of the élites have worked and toiled for the benefit of the masses in our cities. How utterly ridiculous all this effort looks now. We don't need the masses any more; all weapons, all science are in our hands. It was all right for past generations—ever since Mamlock built all these cities, all these industries. But now they are wholly obsolete. We have the Life Force direct; why all these encumbrances; we might as well stop production of the Mamlock foods and let the cities die; to hell with them."

Old Rogge looked around the terrible, the distorted, the haughty faces: "I would advise caution. We should refrain from abusing the powers in our hands. Human society is in a state of spiritual despair; ours is the responsibility of leadership. It is our duty to take care of them; maybe through simplification—liberation from the burden of individualism—creation of hu-

man hybrid-types with some degree of permanence . . . one never knows . . .”

Urtubi giggled and it sounded like the cackling of a bird. He was in shape:

“Rogge, you’re getting senile; you’ve lost all imagination. Can you not see that this Life-Force in our Lands means the glorious dawn of a new humanity?”

Old Rogge slumped in his chair: “Heavens, you, and you, and you; all of you who are power mad, all of you who have reverted to beasts and monsters; this is to be ‘the glorious dawn of a new humanity?’ Listen, I have come to this place of perdition already sick at heart but with one last hope that perhaps at the last minute you might rediscover a forgotten feeling called shame. Shame over what has been done, shame over what is being done, shame over what is going to be done. All right then, I was wrong. Proceed; tear up the guts of the earth, melt all mankind together in a protoplasmatic gruel, do all the monstrous things you want. I won’t have any part of it . . .”

Heavily he walked out. Minutes later it was reported that his personal plane had power dived into the channel. The news did not interrupt the discussions. Steinherz, the “Terrible,” now the Griffin of the sagas, held his fellow Titans under his spell:

COMRADES, it has always been we or ‘the others.’ Now it is us alone. Rogge the weakling in a way has read my thoughts: Nothing is impossible to us; we hold the Power. Let’s make the most of it. For the last two thousand years mankind has progressed only through those who made a profession of not believing in anything. Only through the great transgressors of so-called laws, divine, natural, human, have we advanced to where we stand today. Rogge was right; we do not refrain

from anything. Let us live up then to the ultimate limits of our possibilities. Personally, I’m going to attack the earth. I’m going to tear out its guts; I’m going to do it with my bare hands. In order to do this we’ve got to aggrandize ourselves as far as we can. Gather all the power within our reach, foremost the Nets. Let’s throw into this battle all we have, and to hell with humanity.”

The handclappings of Kali’s hundred arms drowned out all the others; for the last battle for the Titan-rulers of the world gathered their strength.

Returned to their cities Kali, Lamia and Steinherz—he too had adopted a new name, calling himself “Sutre,” the black prince of Hel—these three forced their trembling scientists to change them into Titans. Not Titans as the old ones had been, not Living Towers who could not walk but a perfected type with all their limbs intact. As to the shortlivedness of the old Titans, they thought they had the remedy; it lay in the direct bodily incorporation of live Turmalin-batteries, a secret which Sutre had hidden heretofore.

Under the threat of the “Vigilante-Committees” established by the last governmental order the tyrants ever issued, the technicians proceeded with the terrible work. This time human beings had to be used exclusively for the building up of the “placenta” from which the Titans grew. Their hecatombs were rounded up by the élite guards from the degenerate populace of the “Magic Mountains” themselves; hundreds and thousands went voluntarily; into the foaming yeast of flesh they jumped with a cry of relief, tired of life under the artificial suns, tired of the circus games and the sex games which had followed them, glad to have the whole show ended. For in those last months and days of the old civilization

a suicidal mania had come over the people.

Wallowing in the huge dry-dock like basins filled with this horrible mass the three Titans absorbed it, groaning, grunting with their growing pains. Finally they arose, shaky still like newborn foals, probing their limbs, clutching the remnants of the Nets to their nakedness.

From London the giant Kali roared through hollowed hands and the answering calls came back from Moscow where the colossal Sutre stood, swaying still, his head up in the clouds. Wailing the answering call came from Paris too where in the Bois de Boulogne the Titaness Lamia still lay tied to ground, cursing in Russian the frightened little French scientists who had failed to complete work on her in time. Shaking with thunderous laughter the others heard her. Swinging enormous legs Sutre marched in the direction of the wailing call; by noon the giant drank his fill from the Oder-river which went dry behind him; angrily he tore his foot out of the ruined caverns of Berlin where it had broken in. Across the Hartz-hills he stomped; in the afternoon he crossed the Rhine. By nightfall he espied by the pink glow of the live Turmalin-nets the bare body of the Titaness Kali who had already waded through the English channel.

TOGETHER the two bent over the uncouth, the sputtering, the venom foaming shape down in the vast excavation which had been a beautiful park in the past centuries. For hours the roars of their laughter shook the air; so funny she looked with the fleshy Lamia struggling like a babe in arms. Like a towel Sutre crushed the Turmalin-nets on his breast; kneeling down by their comrade the perfected Titans started to rub her who still was bound.

Tremendous sheet-lightnings shot out from their rubbings; rocks of the excavated basin split; tiny little human beings who had been unable to flee were burned to ashes; parts of the Magic Mountain Paris caved in. Then they grabbed her by the arms; with a volcano-like eruption they tore her off the ground; swaying she stood in the embrace of the others. Still laughing with the huge joke it all was they patted Lamia on the back, beating out the green flames of the Life-Force which still kept bursting from her skin.

"Never mind Lamia, my sweet, you'll be all right."

Not much remains to be told of "Fimbulvitr," the old Civilization's terrible death-agonies. In the distorted brains of the three Titans there raged the mad fury of the Berserks of yore. With their heads in the clouds they stomped over the ravaged lands; whenever their foot stumbled over one of those human ant hills, one of those "Magic Mountains," still thinly populated with a degenerate race living in fear, despair and anarchy, they trampled on it, stamped it furiously into the ground. Urtubi, the only one who had not become a Titan, who still clung to a vulture's shape and wings; Urtubi who now called himself "Fenris" they had sent over to Greenland to see whether the monsters were still alive.

One night he returned to the European continent, guided by the rose colored light which radiated from those walking mountains, his fellow-tyrants of the world. On Sutre's shoulder Fenris alighted and croaked:

"They're all dead, our little pets, the monsters. Greenland is cold; phew, I'm still shivering. They've all crept up the valleys, the saurians have, where the Nets have come a-tumbling down. Skeletons are all that are left of them; I dug a few out from under the snow;

had my supper from them. S'pity they should have gone . . . ”

The others shook with mirth; they were in a state of permanent power-intoxication wherein everything seemed funny to them in the extreme:

“Bah, to hell with the Greenland Nets; we don't need them. We still have those which the cities once stowed away. We'll gather them; we'll use them to grow still more till we're strong enough to tear up the volcanoes with our bare hands; suck the life-blood of the earth from them; then we'll be all right.”

And they did. Tapping back and forth across the continent they dragged out all the nets they could gather from the subterranean storage caves. Onto the huge barren plain where once the Fire-Plows had walked across, between the Oder and the Dnepr-rivers they spread the Nets. Laid down then, mountains in the rolling plains; wrapped the Nets around themselves like blankets—waited patiently . . .

And in the degree as the earth began to melt under their bodies, to foam, to gestate, they heaped around themselves. Their mouths they bent into the rivers and let them surge through their intestines.

Rocks grew into their backs extending roots of ore-veins, long tentacles of crystalline matter into their hardening flesh. The Nets they kept close, clutching them to their breasts. In a semi-circle they lay.

Sutre in the middle with Fenris growing from his head like a ragged mountain top; the two female Titans had bedded themselves at the shoulders and the feet of Sutre, the Life-Force's mastermind. Slower and slower went their breath; it came in gusts of hurricanes; eternal thunders and electric storms tore the sky over them. Into the softened, the boiling earth around them

the Baltic penetrated from the North; it washed their feet and hips. At times they tried to move and those attempts were earthquakes; sometimes, oppressed by their own weight the dreamers moved their petrifying lips to murmur, but it was only mountain streams which gushed from the rocks of their teeth . . .

The earth-force overpowered them; the grey matter of their brains, it crystallized; strange growths of spongy copper and of gold it formed; thought-waves froze to nests of crystal-needles, precious stones; consciousness vanished; the animate reverted to the inanimate. A mountain range, still sputtering with fumaroles and boiling geysers stretched along the Baltic coast where there had been no mountains before. It was a mountain range shunned by the little human beings which again began to infiltrate the plains as new grass began to sprout from lava cracked by the winter frosts, feed for their cattle. It was a mountain range around which weird and fantastic sagas were woven in the winter nights when the women-folk gathered by the fireside to spin and tell tales of the olden times.

For Man had survived the ultimate catastrophe. Like the people of Israel they even had found their Moses to guide them through the deserts of the wilderness. Among the wandering, the savage hordes which thronged in chaotic treks across the American and the European continents, strange men and women appeared, ragged as the rest, but wearing the rags of what once had been the battle-dress of the Gideon Kyle and the Uno Hogstrand-fleets. They had formed labor-battalions which built new roads across the wilderness. They had formed camps where the exhausted could rest, where they were taught the ways and the means of survival: how to till the soil, how to cut the lumber, how to build log cabins,

how to forge plowshares and cultivators out of the scrap of cities dead. —

Rumors went that these strange men and women were descendants of the old ruling élites. These rumors were never contradicted effectively; en-

grossed in their salvaging work the greyhaired Kyle, the white maned Hogstrand and their monkish followers, were by far too busy to squander futile words.

THE END

THE EXPLOSIVE RAYS

JUST a few ordinary years ago Alfred Nobel introduced nitroglycerin, a substance which has aided man in both peacetime and war endeavors. Modern explosives, not considering gun-powder among them, have given rise to continuous researches, all aimed at procuring still more powerful agents. Exclusive of the atomic bomb, however, there has been very little amazing progress in the field of explosives since Nobel's time.

An explosive substance is characterized by its ability of sudden reformation into other substance, such that many of the molecules of a given charge are shattered simultaneously. Explosive substances such as nitroglycerin, gun-cotton—in a word, practically all of the materials employed in guns and in blasting—are packed with energies of formation, which are simultaneously (or rather comparatively so) released when a charge is detonated. The metallic picrates are more explosive than picric acid as regards sensitivity to "shock," even upon dropping or tapping with a hammer. The terrible sensitivity of nitroglycerin was one of the greater handicaps in the earlier production of the substance. In fact it was not until the introduction of cushioning agents (sawdust, sand, etc.) to form dynamite from nitroglycerin that this explosive became comparatively safe for transporting and blasting purposes.

EXPLOSIVE SENSITIVITY

High-explosive matter is substance so loaded with energy for that particular form of matter that the addition of more energy is not tolerated above a certain small amount. As the energy saturation point is approached, the sensitivity increases. In the most sensitive explosives, such as nitroglycerin and the picrates, even mild "shock" is sufficient to produce the chemico-physical reaction called explosion. What happens is that the energies inherent in a given substance, which have definitely become a part of its molecules and have an important role in maintaining the relationships between the atoms constituting the molecules, are disturbed by the introduction of hydrodynamics "waves," set up by a blow, by heat, or other means. In the same manner as an army can shake a bridge to pieces without exceeding its maximum load limit, by keeping step as the men pass across, explosive molecules are shaken to pieces by hydrodynamics quanta traversing them in unified movement. The effect of the repetitive regular passage of quanta is to increase the stress above the limit

of strain for the individual molecules. Thus an explosive molecule might be called one which can not tolerate stretching. When sufficient stress is introduced in a nitroglycerin molecule, the nitro groups give up their oxygen to the carbon atoms, themselves forming nitrogen gas (first atomic, then molecular). The simultaneous formation of two gases which normally occupy much more space than they find themselves in at this point, with high energy content, explains the tremendous expansive power of good explosives. Water formation adds the power of steam as well as CO_2 and N_2 expansive forces.

Another manner in which the sensitivity of explosives like the picrates might be explained is by way of the oxidizing (roughly equivalent to the power of oxygen to burn a substance) power of the nitro group, for example, and the presence within the same molecule of atoms which are not yet fully oxidized (these we call "reducing" agents, because they require further oxidation in the process of which they give up one or more electrons beside what they have already lost) to attain their maximum oxidized forms. Such atoms are the hydrogen and carbon atoms as found in high explosive material. From this point of view the force of the explosion might be viewed as the sudden internal reaction of each molecule of substance. Thus a compression "wave" of hydrodynamics quanta (the superficial aspect has often been defined as the energy itself) forces the atoms of each molecule, with their captured energies, into a much smaller space than normal, and atoms such as the oxygen and hydrogen suddenly combine with each other to initiate the rest of the molecular demolition.

Probably both of these phases (compression and rarefaction effects, or concentration and stretching) are operative, and the simultaneity of molecular destruction displayed by millionth-of-a-second photographs of small explosions demonstrates beyond reasonable doubt that the explosion is brought about by hydrodynamics quanta travelling with the speed of light, and not at all by the slower, clumsier atomic regroupings referred to as molecular wave-motion. The latter is only the obedience of the molecules to the elastic constants governing whatever type of matter is affected.

NOW that it is apparent that the substances commonly called explosives are compounds (e.g. nitroglycerin) or mixtures of elements (hy-

drogen and oxygen gas for example) or mixtures of compounds and elements (methane and oxygen) which have high sensitivity to the introduction of energy to their system, view the world about you. You can see many, many different substances and mixtures of substances. Each substance belongs to one of two great classes (exclusive of pure elements). In one class are all the substances whose formation required the locking up of more energies within their molecules than were contained in the atoms which formed the molecules (*endothermic* [heat within]). The other class is made up of all substances whose molecules contain less energy than did the atoms combining into them (*exothermic* [heat departs]).

By far the most inclusive of the sub-groups of the endothermic class is the organic substance kingdom. These substances contain energy for the most part and many of them are easily burned releasing the energy locked up. However, in the explosive sense, most of these forms of matter are insensitive. Dropping a pound of sugar doesn't cause any explosion except within the person who drops it. But this fact does not prove that the sugar can *not* explode. It would explode tremendously if enclosed in a thin metal container and weighted so as to sink to the bottom of a molten steel bath.

The high sensitivity of picric acid (even to hydrodynamics), the lower sensitivity of hydrogen-oxygen mixtures (which respond to a concentration of energy characteristic of the spark or flame), and the still lower sensitivity of sugar shows that explosiveness is largely a matter of definition. By the employment of trip energies in accordance with the sensitivity of any endothermic compound, explosion may be brought about.

As the science of lenses develops, concentration of visible and invisible energies into points much finer than the pinpoint will become possible. It will then be possible to activate any endothermic substance so as to compel its explosion. Substances such as wood, fabric, green plants and the animal body can be destroyed in a puff of flame and dust and fumes by carrying this principle to the extreme. The fundamental principle involved is merely that of raising the energy content of a system to the point where it is impossible for it to maintain itself.

But this particular method is crude and unproductive compared with the possibilities of rays consisting of selected components. Thus a certain medical man showed in the late 1930's that by the simultaneous use of three different streams of quanta, all of which are characteristic of the iron atom, hemoglobin becomes instantaneously explosive. The effectiveness was demonstrated by killing small animals with the physician's machine. In this type of ray is an example of the employment of ray-components sympathetic to the formation of new substance. The energy required to kill with a *selected* ray is much lower than what is required by other methods such as bullets,

X-ray, etc.

Applying the sympathetic vibration to the explosion of endothermic substance is not so complicated as might appear. In the matter of inducing any carbohydrate to explode, such as cellulose, the problem resolves itself into the supplying of a certain few frequencies emitted by atomic carbon, and several frequencies emitted by dry steam at 800 degrees Centigrade.

Just as the hemoglobin molecule becomes explosive under the correct *low energy* conditions, any endothermic substance can be forced to disintegrate of itself into other forms of matter.

Envision a tremendous span across the mighty Mississippi, and a great army crossing it in step. The weight of the men sustained by the bridge is far beneath the structure's load limit. The total energies these men could simultaneously exert in pushing against the bridge would be insufficient to break it down. Yet the rhythmic footfalls inexorably produce the sympathetic vibrations which can destroy the architectural integrity of such a steel bridge. The structure of the metal itself is changed by the dancing quanta of hydrodynamics, acting successively and continuously in the same direction. When the crystals of steel enlarge sufficiently at major points of strain, the structure weakens and collapses like the One-Hoss Shay.

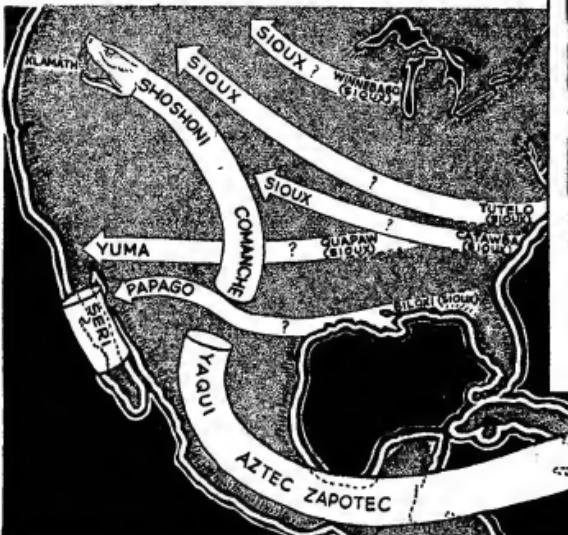
A great majority of rocks and minerals (mostly exothermic) would require the tremendous concentration of energies (referred to earlier) to manifest significant changes in molecular structure. Under such an influence these changes would be mostly physical. But by combining select rays in very high concentrations even these tight-locked molecules could be induced to return to elementary phases to some extent, with great volumes of oxygen passing off, and impalpable dust replacing the solid substance.—John McCabe Moore.



"He's becoming the nation's feminine favorite, but I think television will ruin him!"

SCIENTIFIC

Could it be that the legend of the Snake in reality tells us how the great migration came along its tortuous path from a beginning at Tiahuanaco in South America, up through the Caribbean, on through Yucatan and Mexico, into America's plains, and on up to the Klamath? Just how extensive is the influence of the Sioux?



The untamed Seri sacrificed children at puberty to the Snake; their cave temples; all point toward the Caribbean. Their legends seem part of the Snake legends

More evidence of a connection existing between far-flung races who revere the Snake is in the startling similarity between the type of land-terracing and giant stone building employed all the way from Peru to the Philippines and even up into Chihuahua and into our own Arizona



R. FUQUA.

MYSTERIES

THE TOTEM OF THE SNAKE

By L. TAYLOR HANSEN

What is the real meaning of the snake symbol?
Does it tell the story of the migration of a race?

ONE works through the lore of many totems and legends for a long time before one begins to catch a glimpse of The Snake. It is so old and so submerged, that one wonders if it ever had an identity or was only a manifestation of The Dragon.

However if there had been a Snake of Pacific affinities, originating in India and going through round-head centers of population, probably Asia, so that it carried a round-head population with it into the Americas, the racial mixture of the Uto-Aztec language group might be partially explained.

It is evident upon the very oldest statues that the snake was prominent. The "Goddess of Death" statue attributed to the Aztecs, The Chavin Stone and the Tiahuanaco sculpture¹ all testify to the once-powerful Snake. The Yaqui tell one that the power of the "Clowns" come from the Serpent who lives in the water in the mountains. And like all other tribes who have snake-legends, the Serpent was the wisest of all creatures, and the clement which it ruled was water.

Among the round-headed Comanches and Shoshones is an interesting Snake legend. In the beginning these two tribes were brothers (both are Uto-Aztec speaking) but one day a quarrel broke out between two friends, one of the former and one of the latter people. As one struck and killed the other, a mist formed on the pool nearby and from it materialized Wakanaga, the Great Snake-god. He reproved the murderer so scornfully that the guilty man died on the spot.

The name of this deity, it will be noted, is made up of Wako and Naga, both ancient Pacific names.* One immediately recalls that the Siouan Thunderbird God had a similar name. Might one suspect that the Siouan deity was an amalgamation of this earlier Snake-god and the Wind-god of the Atlantic coast?

One other group of legends leads one to suspect that this might indeed be the cultural-pattern

¹Chavin Stone and Tiahuanaco are both of So. America.

*Wako a white culture-hero, similar to the Great Reformer in time and type. Naga is the Hooded Serpent of India.

which the invading Siouan peoples took over. The Papagoes tell of the "Army of EE-ee-toy" which came from the east and conquered all of the peoples of the west except those who lived underground—The Snakes? Then leaving some portions of the army behind, among whom were the ancestors of the Yumas and the Papagoes, the military ranks of warriors, who sang as they marched, returned again toward the east. This thinly-disguised hit of history seems to be borne out by the fact that the Yumas, before being placed upon reservations, were still building giant mounds in the desert, most of which have not even been suspected until the time of the airplane. Was this "army" a punitive force of the moundbuilders? If so, it must have passed through the west some two milleniums ago, as today the tongue of the Papagoes is Uto-Aztec, and like the Yumas, who now speak a related language, shows little likeness to the Algonkin.

The name of EE-ee-toy, shows that this early captain has been since confused with the name of the Wind-God. Was Ed-Weech-me of the Klamath Indians a memory of the same western expedition? Like the Papagoes and the Yumas, the Klamath have some fragmentary bits of Algonkin culture, such as the name "Manitou" for the "Great Spirit," although their tongue shows milleniums of separation. The Klamath too, were children of The Wind-god.²

The legends of the Papagoes further enlighten us with more details, perhaps of this same military expedition. They declare that they drove a "bad people" to the south along a narrow ledge of land. Strangely enough, this legend finds a sequel among the Seri who declare that the Papago once drove them south, and furthermore, that they have fought an endless war with the Papago ever since. Were the Seri, then, the submerged, or in their case, since they fled to a refugee location, the unsubmerged Snake?

Here again, in their territory between Lower California and Tiburon Island, the untamed Seri show a definite Dragon culture pattern. Their

²The Klamath symbol for the wind is the pyramid upside-down, thus telling the initiated that the Wind-god defeated the pyramid-building Dragon.

undoubted sacrifice of their children at puberty³, their matriarchal culture (despite the objections of Dr. Lowie, who seems to be unacquainted with the works of the Coolidges), their cave temples and reverence for fire all point to the Karibs and the Caribbean. Again their legends of ancient cities which they fled in canoes, and their long-headed Karib physique all bear out the probability that the Seri were of The Totem of The Dragon. Their early habit of wearing tufts of cotton was to be duplicated among the ancient peoples of Mochica, according to Central American legends, who sacrificed certain children dedicated to the Great Temple of theirs at puberty. They too, were lake worshippers, canoe-men, and built their main temple on an island in the lake they considered sacred. And for that matter, so did the Zapotecs, of undoubtedly Caribbean affinities and also the ancients of Tiahunaaco of whom little is known.

THUS again, we reach, in searching for The Snake, the culture of The Dragon. It might be suggested that this chameleon quality of The Snake is due to the fact that it was superseded by The Dragon which may have originally been one of its colonies, thus the second totem was in reality a continuation of the first. Whatever may have been the cause, the two are impossibly confused in the Americas. Tracing down the supposed Snakes in the Seri and finding the Dragon culture of the Caribbean is only a typical example. We even have Votan, supposedly of the Snake, according to the early histories given to the Spanish by the Mayas, when the Spanish Monarch, after the burning of the books, sent out inquiries; mentioned as the legendary emperor of the Chanes. Yet in the Popul Vub, also of undoubted antiquity, the Votanic Empire held sacred Cahrakan, the great Earth-Monster.

If this powerful empire had once conquered the former inhabitants of Papago territory, and these people had been the Pueblo 111⁴ culture, as it is known to science today, or if Pueblo 11 had been Naga outposts, and Pueblo 111, Votanic outposts, all this puzzle might be more easily solved. It is not exactly simple to discover who the last conqueror might have been, but to trace the one before the one before the last, finally becomes an enigma.

The Amerind name of Chanes or Cocomes certainly does not resemble the "Naga" which permeates not only the Mediterranean to one side

³The manner in which the children of the Seri are yearly disappearing is a puzzle to many. The tribe is literally committing suicide. Of course, child sacrifice is probably the reason. The Seri are nominally under Mexican rule.

⁴It is to be noted that the god materialised from the mist of a pool showing that his home was water.

of its old India center, and the South Sea Islands to the other side, but also extends across into Asia. Under these circumstances, the name of the Comanche⁵ god, may have been merely accidental.

Yet when one studies the similarity of megalithic constructions, and recognizes the long list of cultural traits which follow that type of the landterracing and giant-stone building peoples in their seeming trail extending from the Philippines to Holland and from Peru to Arizona and Chichuahua, one feels or perhaps senses, as it were, the presence of The Snake or The Serpent.

As Sedillo, the Yaqui chief, once pointed out during a conversation with the present writer, near Mexico City, our clearest hint of the genealogy of the later totems comes through the Egyptian Osiris. Of an undoubtedly amalgamation, showing distinct characteristics of the Wind-God, or Elder Twin, Osiris is nevertheless of The Serpent, because he wears it in his crown, its head protruding out from his forehead. This might be only the symbol of the wisdom of the wearer, because this crown was handed on to the Egyptian pharaohs. Yet if we analyze the crown, it was composed of two parts, the tall white hat of Upper Egypt and the short red crown of Lower Egypt with its encircling Snake. Lower Egypt was the kingdom of the sea—the water-borne invaders who brought in the pyramids and the early science. Thus we come back again to the mariners of The Serpent. May we not then be justified, he asked, in regarding the Serpent as culturally ancestral to the Twins as well as The Dragon? Especially in view of the widespread Amerind legend that the Twins were defrauded of their father's kingdom by an invader, probably The Dragon; were then nourished in exile by the Moon or Spider, and finally returned as adults to strike down the invader, before breaking their partnership with strife. And as for the Dragon/ the legend of mother and son around the Atlantic, suggests that the totem was also a cultural descendant of the earlier Serpent, and possibly the quarrels which are so world-wide in their echoes were caused by the break-up of The Motherland.

All of this is of course, possible. Perhaps all of the contestants are now of such an incredible age, that the truth will never be untangled. Yet it is possible that The Serpent flourished before The Dragon, and in that case, The Dragon being the Votanic Empire, we must search behind it for the ancestral Serpent. There could be but one possibility in this case—The Megoliths.

If the Serpent Totem was that of the Megalithic Builders, and this is entirely possible since the snake is most prominent upon their statues, then indeed we are dealing with a civilization of incredible age since it flourished upon a land surface very different from that of today, and apparently under different climatic conditions. Per-

⁵Pueblo 111 culture was the greatest extent of the Pueblos, probably before much of the incursions of The Wolf.

haps if this is the case, it is too old to ever emerge from the mists of legend, and we can catch glimpses of it only occasionally. Yet those glimpses are startling, for they seem to reveal a vast world-encircling colossus which extended from ocean to ocean, and whose science and master workmanship in the art of stone masonry was evidently lost for millenniums before our racial memories had clarified into history.

Yet submerged though its symbol may be by the Semitic invaders of the Mediterranean, the Aryan invaders of Europe and the children of

the Amerind "Twin" gods, nevertheless, The Totem of the Serpent retains even today among the peoples of the earth its two main attributes—its mastery over the element of water, and its inscrutable wisdom.

REFERENCES

- Native Culture of the So. West* by A. L. Kroeber, U. of Cal. Press.
The Matrilineal Complex, by Robert H. Lowie, University of Calif. Press.
Aw-aw-tam and Indian Story-tellers. The Papago Legends recorded by Harold B. Wright.

WHAT MR. GRAHAM MEANS

ROGER GRAHAM'S assault upon the bulwarks of mathematical orthodoxy brings up some interesting facts. Perhaps some did not find his concentrated expression quite as readily comprehensible as a short story. The writer certainly didn't, but not at all because Mr. Graham had failed to do justice to his ideas.

Because he is more careful in his definitions of terms than mathematicians are wont to be, don't give up the chase. Unfortunately, throughout the centuries of mathematics there has been a tendency to allow everybody learning arithmetic and its higher forms to define such terms as 'less than' and 'greater than' according to individual taste. This is a prime mistake, which has led us into such erroneous systems as "non-Euclidean Geometry," wherein the inescapable precepts of Euclid form the substructure for a system which claimed to have outgrown Euclid. I understand mathematicians finally quit chasing their tails in this particular regard, but it is evident that higher mathematics is still doing quite a dance on other tabletops. Wherever the mathematicians of the science of Physics are unable to secure tenable equations by the use of established mathematical principle, they merely depart from said principles, introducing constants and variables at will until they 'believe' the figures fit the facts. Quantum mechanics, with one eye looking toward New York (the photon theory) and the other eye looking toward HongKong (the wave theory), is a desideratum fashioned out of that type of spiderweb.

Mr. Graham asserts that infinity separates the digits themselves. This is true. It is true because the number of fractions of any whole number which can be formulated is a limitless quantity. From this it becomes apparent that Infinity is resident in the so-called finite.

Roger then proceeds to derive nothing (zero, that is) by dividing something (a finite number) by totality (the infinite number). As he then points out, the infinite and the finite bear no workable relation to each other, except through the medium of nothingness. Taking a different approach to the same situation, it is easy to see that dividing any number into absolutely limitless portions makes each part absolutely meaningless (zero). Such a process might be called the de-

struction of the integer, by mere disintegration.

This, he shows, means that finite numbers have relationship only to finite numbers, while the hypothetical infinite number can only have relation to others like itself, which are automatically also infinite, because they must be of the same general class. Thus the finite frame, with which science is familiar, implies the existence of a frame beyond the mightiest conceptions greater than itself, and it implies another frame far smaller than itself.

There could be no mathematical thought other than this implying the truly infinitesimal or the true infinity, both beyond the power of man to reach. The theory held by the writer in regard to the structure of the Totality (September issue, *Star Dust*) is a non-mathematical expression of these same magnificent truths.

There is one matter which Einstein treated very inadequately. That is the conception of time as another dimension. Neither in physical science, nor in general philosophy, is such a conception necessary or desirable. Time is truly but a human abstraction of motion. Suppose that the clock of totality (that is, absolutely everything) stopped all motion, until such an anonymous "time" as a week from Thursday. Not an atom, nor a photon, nor a "wave" moves. When the flux of everything "begins again" there will actually have been no time lapse. Extra-totality is non-existent, and there could be no hypothetical observer. If you rely on a sun-dial entirely, only the motion of the sun describes the mental concept of "time." If you rely upon a clock entirely (presupposing no inner sense of time from your own physiological "clock") only the motion of its hands describes "time" to you. If you are a savage only your inner sense of change (motion, body chemistry, etc.) or your outer sense of change (motion relative to your surroundings), or your sense of environmental changes (motion of growth, or of the moon, sun, or stars) defines time to you.

Actually we live and die amid the processes of eternity. Few ever attempt to find out that the senses may often be delusions and snares.

Hats off to Mr. Graham! He has started the ball rolling which may ultimately prove that everything existent within a given frame is simultaneously coexistent with every other thing in that frame.—John McCabe Moore.



WHAT MAN

STEAM POWER PLANT IMPROVEMENT

MOST efforts toward improving the efficiency of the Steam Power Plant have centered on improving the combustion of Fuel. That is where the principal waste has occurred. Below I list a few totally unrelated developments which I combine into a Steam Power Plant.

For Fire-Fighting purposes "Fog Nozzles" have been developed which will now operate on 50 gallons per minute of water. That unfortunately means that my plant must consume at least that much water. For the purposes this nozzle was developed the heat absorption ability of many small droplets is far superior to a solid stream.

In an unrelated field the development of High Frequency Currents for heating has introduced techniques of very rapidly heating materials.

To those two I add a "Reciprocating Turbine" and come out with the following:

An engine consisting of a steam chamber equipped with a fog nozzle injector and the electrical equipment necessary to convert this steam chamber into a high frequency field.

The turbine is designed as follows: An outer chamber with smooth inner walls designed to carry the pressure developed:

A hollow shaft connected at the front end with the steam chamber and running through the outer shell to bearings at the far, or rear, end where it carried the load.

The inner surface of this shaft is fitted with spiral baffle plates running from right to left. (Much like the rifling of a gun except that the lands of this rifling are not as broad.) At the end of this rifling; but still inside of the outer shell, the shaft is slotted.

The outer surface of this shaft is fitted with spiral baffle plates running from left to right. (The entire shaft might be thought of as a rifle barrel with very fine lands which extend through the barrel and extrude on the outer as well as inner surface of the barrel.) The outer baffles run in a reverse direction to those of the inner ones.

Water is injected in a fog into the steam chamber where the electrical field converts it into steam. The expansion of the steam forces it through the hollow shaft exerting pressure on the right to left baffles.

When the steam reaches the slots it passes through them into the outer chamber. Here, still

CAN IMAGINE...

If you will imagine it, perhaps someone will be inspired to do it. This department is for your ideas, no matter how "wild" they may seem; who knows, they may be the spur to some man's thinking and thereby change our destiny! Tell us your thoughts.

under pressure, it passes back over the same shaft exerting pressure on the left to right baffles.

Thrust is thus exerted in the same direction on both the inner and outer surface of the same shaft.

—William D. Tyler.



JOIN HANDS, VITAMINS.

A VERY merry little dance goes on ceaselessly in the human body as long as it is normal. Like the folk-dances where everyone forms the circle and all dance in unison, the vitamins have an important ring-around-the-rosie to do.

When vitamin A takes the hand of vitamin D it prevents that compound from exerting poisonous effects. However, vitamin E has to be present in order for the body to absorb and use vitamin A and its precursors (provitamin A). A member of the B complex series (inositol) is necessitated for the proper utilization of vitamin E, particularly in the matter of preventing muscular paralysis. Again, Vitamin B₆ joins hands with inositol in order to insure skin and hair health, but the absence of pantothenic acid disrupts the B₆ utilization. At the same time the cooperation of nicotinic acid and riboflavin is necessary to the function of pantothenic acid. But nicotinic acid and riboflavin cannot function in the absence of vitamin B₁.

Although research and practice over the whole nation appears to indicate that children do not have as high requirements for the vitamins as do adults (except in a few cases) no research has ever been directed toward finding out why.

Without doubt the child body is more perfectly tuned than the adult body. The vitamin dance is

quite perfect in most of the unabused bodies of the very young. But a more important reason than the original excellence of condition, is the reason that the child body is capable of manufacturing its own vitamins to a marked extent.

People have been discouraged from thinking that the human body was supposed to be able to manufacture the necessary enzymes for its maintenance. However, when chickens are known to manufacture vitamins B and C within their bodies and the common grass is able to manufacture its enzymes, why should we so deprecate the powers of man as to refuse the human body such functions?

About three years ago a vitamin "augmentation test" was tried at a great university. The most perfect specimens of manhood on the campus were divided into two (small) groups. Ordinary diet was given to one group, with placebos. The other group received vitamins in plenty to supplement the same diet as the first group was taking. The experiment was run for about two weeks, and the group taking the sugar placebos, (which seemed to raise energy a little of themselves) actually came off with a better average on endurance, speed and general efficiency. The originator of the experiment, who was attempting to debunk vitamins, claimed therefore that supplement of vitamins has no advantage.

The experimenter failed to learn beforehand that when there is vitamin deficiency it usually requires two weeks before the supplementing can show its

effects. He failed also to realize that the groups he used for guinea pigs may have been so well-equipped that the men manufactured fair amounts of vitamins within the body. He also failed to realize that the supplementing of vitamins in the second group may have upset the enzyme balance enough so as to impair the effectiveness of the men temporarily. The size of the whole group employed was probably not large enough for fair comparison, and lastly, it would be impossible to divide a small group of men so as to match them evenly for any series of tests such as were run.

It has long been known that there are various bodily tissues developed for the purpose of controlling the mineral constituents of the body (iodine, eg. and the thyroid, calcium and the parathyroid and probably partly the thymus too, sodium chloride and the adrenal cortex) and it hardly appears logical that the manufacture of such substances as the vitamins would be altogether neglected by nature in the animal body. It is known that vitamin C is stored to a limited extent in the adrenal cortex. Since nature does not usually employ hand-to-mouth methods, it is reasonable to assume that there is a body mechanism for manufacturing the substance. Vitamin B complex factors are found in abundance in the liver, vitamin A also, and a substance very similar to vitamin D is manufactured by the parathyroids, and by the skin and lungs from ozone.

The dance of the vitamins may depend upon the energy conditions of the environment. The ozone cycle, the gravity flux, the sun's varying activity, the degree of magnetic flux, the presence of various radio waves (emitted by all atoms in accordance with their individual energy levels). All these tremendous invisible forces course through the bodies of men.

Ah, friend, we have much more than the conquest of the atom to seek.

DEUNKERS and unscientific experiments and interpretations contribute to the problems of augmenting the life process only by further confusing them. Vitamins are added to the list every year, although many times it is difficult to demonstrate that the new discoveries are altogether necessary to the function of the body. For example when Williams discovered the pantothenic acid vitamin, supposed to be an anti-gray-hair substance, he hailed it as being of as much importance as vitamin B₁. A number of years have passed, however, and its need in human nutrition still remains unestablished.

The average layman, not having the time to make a detailed examination of what is known, doubtful and false in connection with the vitamins, is compelled to take the opinions of others as to their use in connection with diet. What is the important truth about these substances?

If all the possible life-substance molecules were counted, in connection with the forms of life which man has catalogued on Earth, there would be at least billions of distinctly different substances, per-

haps even trillions, not to mention the additional unwholesome variations of the same which can arise. It sometimes seems as though every worker in "vitamins" tries to claim vitamin qualities for any previously unidentified organic compound which he isolates and establishes a formula for. It is obvious that such procedure will make the list grow indefinitely. It is also obvious that secondary substances occurring in trace amounts will receive undue attention merely because they are trace substances. Even if they are not foisted upon the public, they may cause a waste of man's most precious resource—mental energy creative of advance.

As the body becomes less efficient after adolescence, and the mind is beset by mounting numbers of problems, the increase of enzymatic concentration (vitamins) in the body tends to offset the loss of bodily efficiency. The properties of the vitamin substances so overlap that investigators are only slowly discovering that the ratio of vitamins to each other is of tremendous importance to health. In very aggravated cases of enzyme imbalance, disturbances such as asthma, hay fever, and other allergic states appear, not to mention the many more grave diseases which the body and the mind then become susceptible to. Yet to these problems there is no answer which will solve a great many troublesome human conditions.

Ethylene disulfonate is a "toner" of the entire enzymatic system of the human body. The substance has the properties of readjusting the ratios of enzymes (vitamin substances) within the living cell. But there are pressure groups attempting to propagandize the employment of other less effective substances for the same purpose. A fairly large name might be mentioned here, but, as the monkey said to the sausage grinder, we'll go into that right now. Suffice it to say that allergic conditions are almost invariably completely alleviated by the use of the compounds (even in very small amount) for long periods of time.

Unfortunately, physicians are too often overbusy with life-and-death matters. There are not nearly enough doctors for the population, even in the United States. Ninety per cent of physicians are strictly emergency men, constrained to the dictates of saving life, and repairing critical conditions. They have neither the time nor the energy to practice truly preventive medicine, nor can they educate the layman in hygienics or disease prevention. The greatest doctors are the disease fighters who are honest, capable and conscientious—the men you know yourself, who adhere to the Hippocratic oath. The others are not worth the time and attention of the people.

All the forms of disease which man has battled find great encouragement in any pre-existing imbalance of enzymes within the body. Some go so far as to maintain that disease of any kind cannot gain entry to a body in perfect condition. Because of the great powers of certain types of disease to upset the body chemistry, however, this

position is hardly worth trying to maintain. It is relatively sure that if there is a perfect human body on the Earth today, none can point it out.

Our struggle against disease becomes more important every day. The extension of longevity, accompanying the gradual subjugation of environment, has also accompanied growing death rates from cancer (and allied conditions) and from heart, circulatory, and kidney disease.

"Well, what are we going to do about it?"—John McCabe Moore.

THE PARATHYROIDS AND THE COLON

A CONVERSATION with a bacteriologist recently led around to the question of the degree of intimacy with which phenomena in widely-separated portions of the body occur. The writer maintains that all bodily circumstances affect all others rather directly, but the friend in question argued that such is oftentimes not the case. Without denying that certain good arguments for the latter view were presented, at least one of the "pro" arguments is a good one in illustration of the writer's line of thought.

The parathyroid glands, lying in or near the thyroid gland in the animal body is responsible for the maintenance of blood calcium level. It is still being argued among medical men as to whether it secretes a calcium carrier substance, or whether it merely keeps toxins (which would lower the calcium content of the blood) under control.

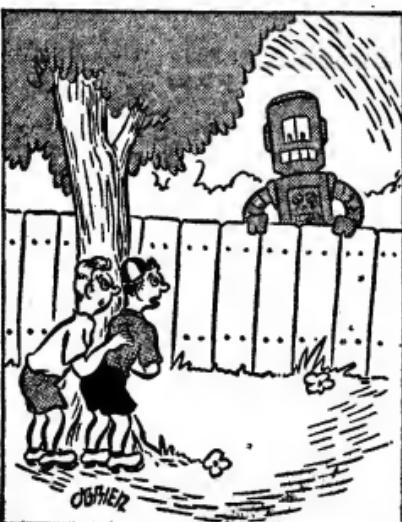
In the conversation the point was made that animals deprived of their parathyroids can be kept alive indefinitely by keeping them upon low protein diet and insuring them against toxins absorbed because of constipation. Any good authoritative work on endocrinology bears out this fact. Going on, it was stated that whenever the colon is not properly functioning (so as to prevent the absorption of toxins) that an extra load is automatically thrown upon the parathyroid bodies, and because of this inescapable effect upon an organ whose interrelation with all the other endocrine bodies is undeniable, that the mechanism of the entire organism is thus directly affected.

Reasoning from this that the intention of the argument was to establish a simple causative factor in connection with intestinal stasis, the friend argued that the endocrines are more or less a system of buffer mechanisms anyway, which would in time lose their powers were it not necessary for them to meet unusual chemical situations. However, it was simple to demonstrate to him that the everyday exigencies of emotional states themselves are sufficient to over-exercise these important glands. Probably of far greater reader interest is the fact that there is no simple explanation of the intestinal stasis which underlies so many grave diseases in their inceptions. The thyroid,

the adrenal cortex, the adrenal medulla, the sex glands, the thymus, the pituitary (especially through its governor capacity) all have profound relation to the factors operating the colon, whether through the energizing processes of direct chemical nature, through the maintenance of muscle tone, nerve condition, general ability to replace metabolized cells, or whatever other sphere of influence might be involved.

The bacteriologist, who is definitely a discriminating thinker, then challenged yours truly to cite any evidence which might indicate that the supplying of substance encouraging the solubility of calcium within the blood stream would exert a corrective influence upon a static colon. Upon running this down in endocrinology, the writer found that in children troubled with constipation, the supplying of small amounts of parathyroid substance (or of the substitute which is considered better, known as dihydrotachysterol) sometimes restores the function of the parathyroids to normal, and when this glandular trouble is at the base of the condition, completely remedies it.

Of course, in the general argument, this was only round number one, but it seems singularly worth remarking that the tiny parathyroid glands, with no obvious connection with nutrition or elimination, should be so powerful in the regulation of muscular action. Whether it does this directly, which is doubtful, is not of so much import as is the fact that the parathyroid is a gland which has important work to do in maintaining the health of other endocrine bodies, not to mention the circumstance that it is so important to the blood balance.—John McCabe Moore.



"Nuts and bolts will give me jolts, but weeds will never hoit me!"

TOMORROW'S CHEMICAL GENIUSES

By VINCENT H. GADDIS

MENTAL brilliancy from a bottle—intelligence in a pill—genius in capsule form! That's the amazing possibility suggested by recent advances in the science of endocrinology. In the magic of drug effects upon the human organism may be found the chemical key that will stimulate into action our dormant brain cells. The genius of today may be the average man of tomorrow.

A solid foundation for research into this startling new realm of progress has been made. As a result it is now quite possible that a time will come when we shall be able to supplement our normal mental powers with chemical assistance as we now supplement our muscular power with machinery. The possibilities opened for human advancement by such a discovery are beyond present comprehension.

A start has been made. It is now known that many common stimulants act to increase mental alertness by affecting the central nervous system. Caffeine, the world's most universal stimulant and the basic ingredient of coffee, tea, yerba mate, and cola drinks, is an example. In recent experiments with chess players it was found that caffeine produced a fifteen per cent improvement in problems accurately solved per hour.

Benzedrine, used extensively as a fatigue-killer by the armed forces during the late war, is another example. Tests conducted in England have revealed that one small dose of this drug causes an average eight per cent increase in mental alertness. One subject actually showed an increase of 19 per cent. Indiscriminate use of benzedrine, however, will lead to addiction. Moreover, medical authorities have warned, this drug has caused toxic reactions which has resulted in death to a number of users.

These stimulants simply increase mental alertness, not intelligence. The basis for the possibility that intelligence can be increased by chemical assistance lies in the discovery that certain drugs, injected into the body, and hormones, produced within the body itself, have specific effects on definite glands or body-areas, but have little or no effect on the rest of the body. These substances, in having a definite goal, are like chemical bullets. Prolactin, for example, affects the mammary glands, causing them to secrete milk; adrenalin causes the liver to release glycogen, thus stimulating the heart.

Intelligence is dependent on the iodine compound, thyroxin, which is produced by the thyroid gland. Only the presence of this substance stands between normal intelligence and idiocy. In view of this fact it is quite likely that tomorrow's chemical bullet which will increase intelligence will affect the brain indirectly through the medium of the thyroid gland.

Sense impressions reach the brain through the

medium of the nerves, and the ability of the nerves as conductors is influenced by their content of calcium. This calcium metabolism relies on the secretions of the parathyroid glands. The nerves can become such good conductors of stimuli or sense impressions, when the glands are not functioning properly and the calcium metabolism is affected, that the dropping of a paper will sound like the blow of a hammer. This sensitivity will someday come under the control of medical science, and when this control is added to direct mental stimulation, the results might well be incredible to us of today.

ACTUAL mental stimulation by drugs, as contrasted with mere mental alertness, has occurred from time to time in the past, but the laws that caused and governed the phenomenon are not known. A classical case in the annals of abnormal psychology is that of a woman who took some morphine for a minor operation. Under the influence of this drug the patient read through three books of a complex character in one day and remembered practically every word she had read. There are a number of similar cases on record.

Various drugs produce different mental effects. Often these effects vary with the same individual using the same drug at different times. As a rule, however, mescaline causes colored hallucinations which are observed with an astonishing mental clarity; cocaine produces extraordinary happiness; marijuana, a form of hashish, slows up the sense of time and stimulates latent musical ability.

All of these narcotic drugs are dangerous. The important fact, however, is that these states of mental stimulation, exhilaration, happiness, a varied time sense and musical ability, are not in the drugs used. The states and abilities displayed are actually in the mind, and the drugs simply serve to bring them to the surface. In other words, the drugs are chemical keys that open mental doors deep in our minds.

Today these drugs, in their natural state, are narcotic, toxic or habit-forming. Most of them have a plant origin. It is obvious, however, that future research may eliminate these dangerous factors and make it possible for various mental states, especially that of mental stimulation, to be induced safely and efficiently through the medium of chemical compounds.

Once the chemical bullet or key to mental stimulation is found, two great doors will be opened: first, the use of dormant brain cells that are usually held in reserve; and, second, the astonishing wealth of knowledge contained in our subconsciousness.

Prof. William James, the famous Harvard psychologist, once wrote that the average person uses about one-tenth of his possible mental power, and

in the light of discoveries in recent years we may regard his estimate as conservative. A baby, even before it is born, possesses as many brain cells as it ever will. With developing intelligence we do not add brain cells, we merely develop them. Layer by layer, as we increase our intellect, they are brought into activity.

Physiologically speaking, there is no danger of our exhausting our brain cell reserve no matter how intelligent we become. Dr. E. B. Thordyke has pointed out that a man counting at the rate of 50 a minute, working 12 hours a day, would require over 700 years to count all the brain cells in one man. There are about ten thousand million nerve cells in the body.

Due to this reserve the brain can take amazing punishment. Within the past decade a large number of brain operations in which the right and left prefrontal lobes were removed have been reported. In all of these cases intelligence was not affected, and in several mental ability actually improved after the lobe removals. Similar results are announced in England. Dr. Geoffrey Jefferson, writing in the *British Medical Journal*, reports a series of six removals of the frontal lobe with "immediate improvement following the excision in all cases." No mental symptoms developed.

It is of interest to note that it is the frontal lobes which have developed in our brain since man started to become civilized. These operations would indicate that the lobes now consist of unused brain cells being held in reserve. Within this brain-area a higher form of human intelligence may be developed with the assistance of some future miracle in chemistry.

CONSIOUSNESS is but the surface of a mental well that penetrates to unfathomed depths. Within our subconscious minds is stored all the knowledge that has passed through our conscious minds. This inner mind never sleeps, and it is capable of independent thought.

Since the dawn of recorded history, according to estimates made by the Eugenics Department of the Carnegie Institution, about thirty billion men and women have been born, lived their lives, and died. Out of this vast number of human beings only about five thousand can be regarded as benefactors of their fellow-men. In addition to these outstanding geniuses, the Carnegie students discovered 125,000 of lesser achievement. In other words, only 130,000 persons out of thirty billions have made achievements worthy to be recorded in history.

The work of one genius is often almost incredible. Thomas Edison, for example, had over five thousand patents to his credit. "History," as Thomas Carlyle wrote long ago, "is the biography of great men."

What makes a genius? Why is one man out of thousands so outstanding in mental ability and achievement? We only know that the answer lies hidden somewhere in the subconscious mind

together with the enigmas of child and mathematical prodigies, inspiration, instinct, and amazing feats of memory. The solution to these mental riddles will someday be found, and perhaps, with chemical assistance, science will be able to produce geniuses at will.

Genius is often allied with abnormal mental conditions. When Commander Horace Leighton, of the British Navy, went to pin the Cross of St. George on the inventor of the davit or boat-lowering device that was formally adopted for use in the British Navy, he found a maniac. Peter Pullen was an insane craftsman. Between fits of violence he made ship models, devising practical and startling new methods of ship construction. His story is one of the most remarkable in medical history.

Dr. Charles Bernstein, when superintendent of the Rome State School for the Feeble-minded, reported the case of an inmate who was unable to read or write, never saw a calendar, and had a mental age of six years. This patient, however, was able to give instantly the day of the week on which any date fell—past or future. A number of psychologists studied the case, but could arrive at no solution. And there was Auguste Comte, the French philosopher, who wrote his *Course of Positive Philosophy*, an encyclopedia of mathematics and the sciences, while confined as a patient in the Esquirol Insane Asylum. This course consisted of six large volumes and is one of the great works of all time.

It is obvious that no yardstick can be applied to the depths or the possibilities of the human mind. The ability of mathematical prodigies is entirely subconscious; they cannot explain how they arrive at their solutions. Willis Dyratt, a famous prodigy of Tift County, Georgia, when fourteen years old, was able, subconsciously, to add a group of 73 figures accurately in seven seconds. Dr. Salo Finkelstein, a Polish performer, was hired by a broadcasting company to tally election returns because he was faster than an adding machine. He memorized the order of 21 numbers in 4.43 seconds. John Popelka, five-year-old Slovakian prodigy, when given the time of any person's birth, was able to announce without hesitation the days and even the minutes that had elapsed since.

The phenomenon of dual and multiple personality offers us a startling insight into mental possibilities. In these cases two or more personalities reside in the brain, each separate personality having its own varied mental characteristics and memory. There exists no overlapping of mental factors, yet all the personalities in evidence are using the same brain.

There are many outstanding examples of the miracle of memory: Charles Welch, a mental marvel of Bloomfield, Missouri, repeating every auto license number he had ever observed and every phone number he had ever heard; Kitty McKeever, chief telephone operator at the offices of King Features Syndicate, never forgetting a voice

although she routes about 2000 calls a day; Barthold Njebuhr, the statesman, rewriting 1800 bank accounts destroyed by fire; William Woodfall, London editor, writing word for word a speech or sermon heard the day before. But Elijah, the Gaon, Chief Rabbi of Lithuania, still holds the world's record. He committed to memory 2,500 large volumes and could quote any passage at will.

The freaks of today may be the average persons of tomorrow. Our scientific progress of the past has been largely physical and technological. This sweeping advance in the physical domain has now been climaxed by the discovery of atomic energy and its release. On the other hand, the study of man himself and his mind has only

started. Psychology is our youngest major science. No one can foresee the tremendous discoveries that will be made as psychical or mental research attempts to catch up with the astonishing advances made in the physical realm.

Between these two scientific fields, the physical and the mental, man stands, searching for the keys that will unlock the mysteries of life and his existence. These two fields overlap, and the physicist and the chemist can assist the biologist and the psychologist. Chemistry may, therefore, be tomorrow's mental magician—producing from the human mind a power as awe-inspiring and colossal in its boundless vistas as atomic energy now unfolds before our gaze.

THE END

THE GREAT DROUTH OF 1947

AS THE hot dry air and the parching sun-light of late spring and early summer has clubbed its way across the fertile grain belt of the United States, the fingers of famine have also laid hold upon the throat of the grainland of Canada. In the Argentine another year of drouth bodes ill for the breadbasket of much of South America.

The word of possible failure of the 1947 rains trembled upon the lips of the weather forecasters in 1946, but those words were fraught with wishful thinking, and because of the climax crop-year of 1946, ending a six-year cycle, weather men hoped that rain this year would be normal. During the past winter ('46-'47), the once-full larder of the States almost vanished, and the Department of Agriculture prophesies a winter of hunger, starvation and gloom this season.

This correspondent has personally witnessed the state by state incursions of the water hunger. Kansas and Nebraska have seen their fields turn to powder before time to lay the corn by. Tremendous stretches of corn and wheat land now are virtually desert. A few farmers here and there are attempting to nurse some surviving plants through in the hope of obtaining drouth-proof seeds for less discouraging years of dryness, which they hope lie ahead. In these states, and to some extent in the states of North and South Dakota, caravans of dusty automobiles are wending their way toward the false security of the cities, in the hope of receiving assistance. In many instances milk-cows and other stock died long before the owners gave up the hope of rain and left. Some communities in the grain belt have bravely sunk numerous shafts in a vain endeavor to secure water, which has virtually disappeared from large sections of the grain country. Cities along the great watercourses of the Missouri and Mississippi can scarcely believe the evidence of the senses, these giants are so shrunken. Less fortunate cities are drilling desperately, while some have evacuated all residents to the nearest sizeable source of water.

In the streets of Omaha and Lincoln there are farmers with gaunt, worried faces croaking gloomily at one another from dust-parched throats, watching the skies through bloodshot eyes with dust-caked lids. Boys and girls for all the world like the children of Mother India play listlessly in the streets or sit mournfully along the curbings. People like these did not know fear in 1946. It is an alien note struck from a long-untuned viol.

The produce marts of Chicago, Sioux City and East Saint Louis are operating at one-third the rate usual at this time of year. Meat packers give numerous employes indefinite leave week after week. Grains are milled within a few days of arrival. No farm experts are raising their voices with any sort of encouragement. Even the productive grain areas east of the Mississippi expect less than half the usual cereal, even if the sporadic rain comes now and then, although weather experts are silent on this score.

It is said that in New York the entire market may be expected to crash tomorrow or a week from now. Buying has been desultory there for nearly a month. Brokers refuse to opine upon the possibilities of any stocks or bonds. Many brokerage houses have already closed their doors, because of the impossibility of furnishing any genuine encouragement to their buyers.

The greatest of national emergencies seems about to be declared. The Secretary of State was quoted as saying that all available boats and ships must be commandeered for fishing expeditions. It is estimated that by November, thirty-three per cent of the American people will be in immediate danger of starvation unless endeavors to stem the rising tides of fearful migration are redoubled and the energies of the people singly devoted to the task of carefully hoarding all the substance which can be used for food either directly or indirectly. This correspondent has witnessed the salvaging of the few weeds still green along the roadsides in certain sections of the grain land, and it is reported that not a few people

have died from the eating of poisonous plants.

An indefinite embargo upon all types of exports has been timidly suggested by the Maritime Commission, but Congress seems unwilling to strike a blow at the Merchant Marine such as an embargo would constitute, unless this action is absolutely necessary. It appears that this step will not be taken until the middle of September or later.

The American Red Cross is making frantic appeals to Russia for grain, since she has her best crop prospects for a number of years. It is exceedingly doubtful that she will be able to spare any cereals at all, however, and certainly not before a full month after harvest-time, since her exports of 1946 were heavier in all commodities than she could afford to spare from her own people. Sources which are anything but alarmist in general tendency indicate that Russian bombs are a more likely result than shipments of grain. Most certainly the reactions of Russia to the critical home problems of the United States and Canada will reveal her true attitudes, so long unguessable.

Your correspondent would never have envisioned the spectacle of city multitudes turning to churches to pray for rain. Yet that is what is happening through the entire middle west in America. Great crowds gather nightly in the churches and assembly halls of the cities with the sole announced intention of praying for the rains that have refused to come. Church membership is the one interest of the people which seems to have wrung profit from the state of affairs. Bishop Weston Sprague of the Saint Louis Area of the Methodist Church, and Presbyterian Moderator Albert Lewis of the same vicinity, both state that

at the present rate of speed, general church membership should be tripled from Christmas 1946 to Christmas 1947.

The damped spirit of the grainland peoples is evident from the falling-off of moviegoing and the general malaise affecting the amusement centers of all kinds. Many of the smaller theatres have already been forced to close their doors. Only the teen-agers in the larger centers seem oblivious to the state of affairs, but this is probably more owing to the fact that such people are given to an attitude of nonchalance for the purpose of concealing their true thoughts.

Here in Spokane the eyes of everyone turn to the skies, not so much in consciousness of the need of rain in Washington State, for it has been sufficient though sporadic, but rather in the hope of seeing even one great rain-cloud shoulder its way past the Rockies.

The ration stamps which the government has been rushing through for the past six weeks are supposed to be distributed over the entire nation during the next three days. War ration allowances will be definitely liberal by comparison with the portions allotted to individuals under the new scheme.

International news, which has been literally crowded off the air, will be forthcoming at nine p. m. tonight. However, much of the news of other nations so much resembles that of our own, that these critical days give us our first true insight into the common experiences of many other peoples.

So, until tomorrow at the same time, Allard Williams, your United Press correspondent, wishes you good evening.

John McCabe Moore

THE BLACK BROTHERHOOD

WHATEVER a man thinks about, that he becomes."

The individual may move forward or backward . . . to remain static is nearly impossible. One's thoughts, emotions, even existence are predominately positive or negative. The duality of near and far, up and down, hot and cold, love and hate, illustrate the two poles to either of which Man may choose to move. Good and evil are a pair of opposites that permeate Man's thoughts and actions almost completely. These two equally strong aspects of Life are seen engaged in constant warfare. The orthodox religionists preach that Evil is simply a "lesser" good, and that good is simply a "lesser" evil. This explanation offends the intelligence as it merely "reverses the standpoint at convenience." Good and Evil are better understood as definite active forces, each equally real and each equally strong. Seen in this light the truth about good and evil may be grasped, and may be compared with the two great movements of nature: centripetal-, and centrifugal-motion, respectively. These two ever-con-

tending forces were represented by the ancients in many ways, of which the best known is the winged staff of Apollo, or Mercury. The contemporary representation, of course, is the winged staff collar insignia of the Army Medical Corps. Evil's being just as patent and active a force as good means each is available as a choice to Man, and this choice each man, sooner or later, each in his turn, must make.

Individuals that are dedicated to the unselfish helping of humanity, those beings that are assisting Man only because they are intent upon his welfare, have made the choice of good. These beings, when other than mortal, constitute the White Brotherhood. Irrevocably and unalterably opposed at every point to the White Brotherhood is the far-flung network of the group dedicated to further Evil: The Black Brotherhood.

Tradition teaches the Black Brotherhood, as such, came into existence when the Lemurian race, previously androgynous, divided into the two sexes near the chronological midpoint of that race and the beginning of the following race, the Atlantean.

Man, as now known, i.e., separate sexes, is about 18,000,000 years old according to the ancient records; before that the two sexes inhabited the same form and Man was hermaphroditic, as are some forms of animal life today. Following the division into sexes, certain groups of each sex decided to be non-conformists, in the ethical sense, and that band of individuals is considered to be the germ of the Dark Brothers. In the Lemurian civilization the Brothers of the Light and the Dark did not have any great amount of friction as each faction was intent on its own affairs. In the following civilization however, the Atlantean, the schism was complete, and so definitely was the line drawn that an intercine war developed and was the main reason for the disappearance of that great civilization from the face of the earth. The warfare was prolonged but not bloody as the Atlantean weapons did not spill blood, merely caused to change to dust whatever came into their range. In this war, truly a battle of giants, the White Brotherhood finally triumphed over the powers of the Evil Ones but tradition holds that only 12 White Brothers escaped Atlantis, before the flood, and "went to different places." It is taught the "different places" merely means various localities in the land areas of the Earth. The White Brothers that escaped went to India mainly, founded that great civilization and were the foundation for the teachings about the "white-skinned" Hindu gods that one may find in the earliest Hindu Scriptures.

To differentiate a White Brother from a Black is a difficult task as the difference is extremely subtle. Generally speaking, no appreciable differences exist in physical appearance, abilities, mental faculties, etc., between the Brotherhoods; classification is possible only in the light of ethical attitude: White Brothers are altruists, Black Brothers are selfish. We have been taught to believe the Powers of Darkness, demons, devils, etc., have terrifying and horrible forms and that all members of the Black Path have a uniformly ghastly appearance. This is not true as the Evil Ones can assume any form they wish and often we find that "evil has a prettier face than good." The Treaders of the Dark Path are often the most bewitchingly beautiful and hauntingly exquisite beings imaginable, and necessarily so as there is a protective mechanism possessed by Man that forces him to recoil from Evil, unless the mechanism is dulled or destroyed by the overpowering beauty of an external form.

FROM every standpoint the White and Black Brothers are exact opposites. The characteristics, attitudes, powers, and rituals of the Dark Brothers are the inversion, actually the perversion, of those of the White Brothers. It is taught the White Brothers chant verses from the sacred Vedas of India to obtain certain effects and that the Black Sons do likewise but deliberately chant off pitch, in the wrong rhythm, incorrectly place the accents and, by so doing, obtain a result opposite

to that gained by the White Brothers. This means, of course, that the Black Brothers can cast a curse terrifically strong. All the hidden powers of the brain and of Nature are used by each Brotherhood. Telepathy, clairvoyance, clairaudience, psychometry, teleportation, material transmutation, and levitation are known and used by the Brotherhoods, as well as hypnotism, control of body functions, etc. Accurately speaking, a White Brother should be termed a Magician and a Black Brother, a Sorcerer. Entrance into the Black group is difficult, more perhaps than entering the White. This is true as the Sorcerer knowingly breasts the current of evolution that is carrying Man to Ultimate Perfection, and a Sorcerer that weakens in the fight against the evolutionary current immediately becomes liable for his past actions, both to the other members of the Black Path and to the Powers he deals with. The Sorcerer wrestles with God and loses all if he weakens. As in the White Brotherhood there is a long probationary period, the White group checking to ascertain an ineluctable unselfishness, the Black group examining for an unceasing selfishness.

There are a great many groups and sub-groups of the Dark ones, the Chinese, traditionally, have the two groups of Brothers as members of their race, the Black group purportedly being represented by the Dugpas, the "red cap sorcerers." The Dugpas are found usually in the Tibetan highlands and the concentration of them is high in the vicinity of the "holy" city of Lhassa. Terrifically difficult and intricate examinations must be successfully passed to enter the ranks of the Dugpas and be "invested with the red hat." Two such tests are the exertion of mental control both subjective and objective, which take the form of firewalking and hypnotism, respectively. There are many methods of firewalking other than by use of mental control. Such walking is possible after anointing the feet with various chemicals, by surrounding the body with an invisible insulating shell formed from the materials of the air by chants, incense, etc., and also by placing an invisible energy curtain around each blazing ember, hot rock, flame, etc. The latter method when used may be detected by the electric-shock sensations on the foot soles as the walk is performed. This method is the one used when spectators are invited to perform the "walk" because this method requires no mental control by the extemporaneous "walker." Though none of the foregoing methods are disdained by any true sorcerer, they are considered as means and not as ends in "firewalking" by means of mental control. Examinations for entrance to the ranks of the Dugpas of China, the Tantrics of India, or the traditional "Sorcerer" group of any land are graduated in increasing difficulty from the simplest which is demonstrating control of the earth and all contained therein, such as invoking goblins, demons, gnomes, causing trees to sprout from solid rock, etc., through and beyond demonstration of control over water, air,

and fire. In one of the more difficult tests the candidate is stripped and seated chest deep in snow. Then by a combination of breath and mental control he attracts a great amount of the energy which the Hindus term "prana." Finally, when he is literally glowing with energy, he releases it and by so doing melts the snow surrounding him. He is successful if the melted area is at least twelve feet in diameter.

HYPNOTISM among sorcerers is considered a very preliminary demonstration of mental control. We of the West have praised its virtues and ignored its vices, due mainly to its being a new subject in the Western world. Hypnotism is a fine art in both Brotherhoods; the mechanics of its use by a White Brother results in establishing the subject in a realization of the Ultimate Truth but when used by a Brother of the Left Path the subject is only incidental and the true end is strictly the sorcerer's benefit.

The selfish attitude is characteristic of the Dark Path. No struggle is too great, no cost too high, if the outcome benefits the sorcerer. This strictly personal attitude is at the same time the cleverest camouflage and greatest weakness of any sorcerer; a clever camouflage because Mankind generally is very selfish and the sorcerer being likewise has a sort of natural "protective coloration"; a great weakness because selfishness may always be controlled by propitiation and if the sorcerer is not alert the propitiator soon becomes the ruler. The Eastern texts clearly state the penalties of using the Dark Wisdom. The later Eastern texts have the finest collections of Hells conceived by the mind of Man and harrowing indeed are the experiences of those forced to walk in those Hells as a result of knowingly becoming a Dark Brother. It is axiomatic in the East that "a sin committed in ignorance does not stain the doer, but an act performed in knowledge brings very uncomfortable reactions." All the many Hells culminate in a state of existence termed avitchi by the Hindus and for sheer terror and soul-searing agony it has never been surpassed. "Solitary confinement," the earth imitation of avitchi, when taken to the logical conclusion, gives only a poor understanding of that terrible state. Avitchi of course is the traditional resting (?) place of the Black Brothers as is the "Eighth Sphere;" a curious place only darkly hinted at in esoteric records. Not only is the final end of sorcery unpleasant but the day by day use of the natural powers causes much difficulty. In

addition to the necessity of constantly swimming against the evolutionary current, it is obligatory to fight the Powers of Light. Every circumstance seems to thwart and interfere with the sorcerer, and it is increasingly difficult for such a one to be in control of all factors. Perhaps the sorcerer wishes to invoke an earth demon and it is necessary to have pure myrrh to burn while performing the incantation. "Pure" in witchcraft does not mean chemically pure, i.e., containing only traces of foreign material, but means "absolutely" pure, for if even the slightest trace of impurity is present the Being invoked becomes angry and turns on the sorcerer, such as is illustrated by Frankensteins, etc.

Black Brothers have been recognized in all times and places. The Dugpas of China and Tantrics of India, "traditional sorcerers" since earliest times, have been mentioned, and to those groups must be added the Ouled Nailis of Arabia, the Voodoo practitioners of Haiti, some of the alchemists during the Dark Ages in Europe, and sundry medicine-men, warlocks, Salem witches, etc. It must not be assumed that every user of magical powers is a Dark One, for the powers are common property of both Brotherhoods. Recognition of a Dark Brother, as such, depends upon the differentiating of selfishness from altruism. Another means of such differentiation is bringing White Powers into action while the alleged Dark Brother is in action. If the exercise of the White Powers interferes with the free working of the suspected sorcerer, one may be fairly certain the individual is practicing in the Black manner. The best method of recognition however, is a close examination of the rituals, chants, etc., that are used remembering always that the Black Wisdom exactly reverses the usual order: the Bible is read backwards, the crucifix is suspended inverted, chants are perverted and the accents wrongly placed, the Order of the Mass is reversed, etc.

In olden days the true Black Brothers, like the White, removed themselves from the eyes of Man so they could work unhampered. The same is true today; many "false prophets" of each path are easily found but these individuals are merely selfish children loudly beating a drum and enjoying the noise. The authentic magician, either White or Black, is not easily found nor recognized as neither announces himself except to those compatible with his nature.

It has truly been said that "Old Scratch may be one's neighbor," and how and who are your neighbors, gentle reader? —Alexander Blade.

"THE CONFESSIONS OF A MECHANICAL MAN"

By DON WILCOX

COMING IN THE BIG APRIL ISSUE

CRITIQUE OF THE SHAVER DISCLOSURE

RICHARD SHAVER has had various kinds of criticism in the letters written to AMAZING STORIES. The vast majority of opinion, however, has been in favor of the idea that the substructure of his stories must be correct. A few perfectionists apparently have tired of the negative implications of certain minor themes in his relations. Certain it is, however, that his ideation must not be condemned upon the basis of reasonless prejudice, which seems to be about the only grounds for attack upon the fundamental vibrations that he has been partly responsible for initiating. It is without doubt a measure of the stature of any scientist who deigns to compose any sort of answer to the bases upon which his theme rests. Many of the men who approve of the scientific phenomena implied in various machines mentioned fail to admit it because of their fear of ridicule. Of those men who have nothing but a derogatory attitude, there is a big question of whether they are not merely jealous of the experiences claimed in the stories.

The vast majority of readers of real science-fiction (not those interested only in the dead-end variety which tears its own future to pieces) are credulous people who do not deny any tales without some reason for so doing. It is a fortunate thing that they are not the prejudiced scorners who attack everything because it is new or different. If they were this sort, the race would be stalemated, and for good.

In regard to the Shaver expositions, it is hardly necessary to point out that the story part, to the average reader, is mainly and importantly story. But in regard to the thread of scientific principle which runs through them, there are facts worthy of much consideration. In the first place, through all the stories, these scientific principles, while sometimes not thoroughly elucidated, are not ever changed. There is no mumbo-jumbo or hint of quackery. If these principles were subject to extensive change or considerable refining or ramifications in successive tales, it might be said that they were the products of a fertile imagination. But least of all those people whose conceptions will not allow them to follow the scientific principles to the point where a focal realization of their integral nature appears, have no license to criticize destructively.

Just as the average reader is in full possession of the knowledge that environment is imperfect and the influences against the effectiveness of his physical and mental being are many, he also realizes that there are exact mirror images of these destructive influences, sometimes man-made, sometimes natural, which might just as well be focused upon the problems of bettering our race.

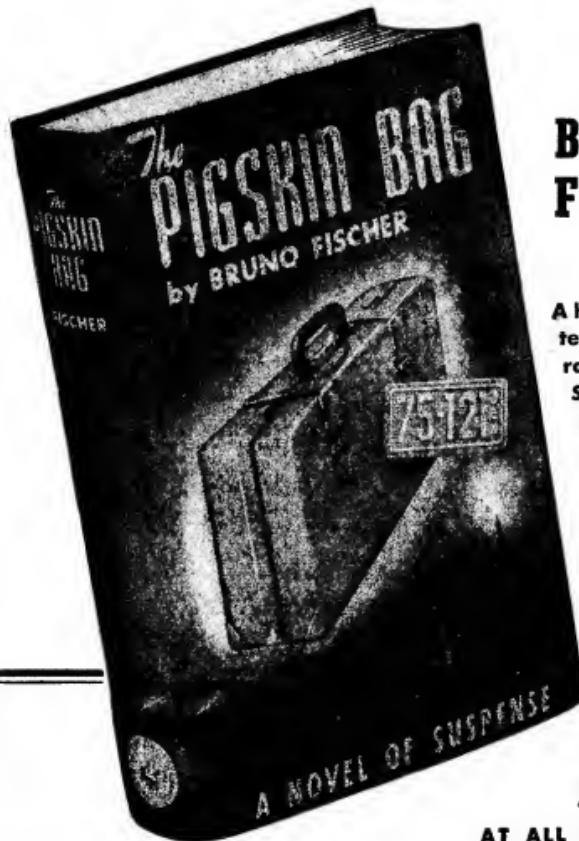
For example, the existence of the destructive rays from natural or artificial radioactivity implies the existence of beneficent rays. The fact that certain less powerful rays (longer wavelengths,

if you insist) can be utilized in killing insects and small animals (a Pocket Medical Quarterly printed in '39) makes it logical to expect the existence of softer quanta of a life-promoting nature. There are quanta which are more or less neutral in their effects upon cells. There are those which encourage all their life-processes and those that encourage some of their life-processes to the detriment of others, while some are definitely unfriendly, or hostile, to any cell or group of cells. These facts do not hang upon a slender thread, there having been much evidence produced in plant and animal physiology which bear them out. However, it is necessary for the person who looks for the evidence to seek it with open eyes and a thoughtful attitude.

The ben-ray machine can be developed any time. The methods are simple and factual and demonstrable, the ray-component quanta (wavelengths to the diehards) are easily obtainable. The rendering of the information awaits only the positive support, financially, which it deserves. And the reader may be surprised to know that our own sciences have all the necessary information to the building of such machines. (The writer spent a number of years prior to 1938 in fitting the fundamentals of contemporary science into a new set of concepts, some of which have been recorded in the pages of A. S. In 1944, just before the beginning of the Shaver exposé, the writer and your editors, Mr. Palmer and Mr. Browne, conversed in general about just such ideas as gravitational flow, general theories of man's history, the vulnerability of the wave theory, et al. Fundamentally, no disagreement in any principle, either general or specific, between Mr. Shaver's ideas and the writer's, have ever arisen.)

THE writer has little doubt that there are at least a few other people who comprehend the truths of the Shaver continuity. In the July *Science Illustrated*, in case some of you do not follow the letters in the latter half of the A.S., a positive indication appears that science-fiction is moving out of the realm of pure fiction and into the realm of pure science to the minds of men whose opinions would have been negative and discouraging yesterday. According to the concepts of Leonardo da Vinci, the average of mankind is approximately four centuries behind scientific possibilities open to humanity. According to the ideation of Jules Verne, mankind is about a century behind conceptions of the fictioneer. Perhaps men are averaging up better now on their general level of realization, but it is definitely high time that the aspects of science which can promote the effectiveness of life be recognized and brought into play. It is time that the forward phalanx (yourself, if you are a person of reason and vision) recognize more of the truth and less of the mys-

(Concluded on page 168)



BRUNO FISCHER'S LATEST—

A high-powered new mystery about the hot-car racket by the author of *So Much Blood, Quoth the Raven, and The Splinter Lily.*



\$2.50

AT ALL BOOKSTORES

THE PIGSKIN BAG

It starts in high and never changes gears. What happened to Adam Breen, automobile salesman, could happen to anyone . . . to you. He was the innocent bystander—pushed around by hoodlums as well as the police—until for his own protection he jumped into the fight himself with both feet and started swinging. He uncovers a murderous hot-car gang, comes up against some plenty rough characters, teams up with a gorgeous newspaper gal, and stirs up enough action to fill 250 pages of fast reading before he finally solves the mystery of the pigskin bag. It's on sale now.

ZIFF DAVIS

PUBLISHING COMPANY CHICAGO • NEW YORK

CRITIQUE OF THE SHAVER DISCLOSURE

(Concluded from page 166)

terious in the Shaver cycle, for it is the tomorrow of man, as well as the undeniable yesterday of the race.

Buried in the meagre informations of the physics and chemistry handbooks of today, so that few descry them, are relationships whose elucidation will result, at the proper time, in anti-gravity machines, so that instead of literally ripping its way through the atmosphere or the stratosphere, a ship can be made to float at any speed regardless of its density. The wasteful, unsatisfactory nature of present navigation will be disestablished.

Implicit in the science of today are two types of telepathy augmentation. One of these can be simply built today, or tomorrow, or the next day. Whenever, in other words, the interest of man in his future becomes a concrete thing. The brazen facts are as plain as the nose on Mr. Durante's face. This type of augmentor is the sort of which Mr. Shaver writes. The other type should not be discussed, to the writer's way of thinking, with the world situation as is. The first kind of augmentor enables a mind or a group of minds to pool their resources momentarily. With alterations it enables one mind to grasp the experience and knowledge of another mind vicariously, for a limited time. With further alterations, it enables the mind on the receiving end to grasp and retain the experiences of another. Founded upon electronic and psychological principles which science possesses today, and upon machines for physiological measurements already in everyday use, this sort of development has much to repay for investment. The present system of adjustment between individuals and society is about as superior to the

system of tribal warfare days as present wars are superior to tribal wars. The sane employment of such a machine is altogether necessary. In courts of justice it would so far surpass the lie-detector that there could be no remotest comparison. The facts which support its construction are just as fundamental and incontrovertible as the facts which underlie the lie-detector. That there must be an organization to govern and dictate the proper use of such a machine stands to reason. Its use in the hands of aggrandize- or power-seeking individuals is out of the question. It could as well be employed in the perversion of mentality as in the worthy building of it. Its use in the unequivocal effort to integrate men into better society seems the only fitting one.

Discarding the mythological implications, if it is your individual wish to do so, or if your knowledge is insufficient to illustrate and point up those implications, and if you find the plots in the Shaver cycle incredible, there is still the solid substance of the science concerned. Few thorough followers of A. S. are likely to discard that much of the series, but the undeniable kernel of truth is not something to shrug off.

The sincerity of Richard Shaver and of Raymond Palmer and of Howard Browne would be a hard thing for you to deny, if you knew these men personally. And that should mean a great deal to a thinking person.

The fundamentals of the Shaver cycle, the deep-laid scientific facts, the supportability of the great age of man and his great ancestors, all behoove the extensive inquiry of the progressive element of the world-population. They behoove the employment of the screen, the radio, and the general press, in bringing home to man that he needs a close integration of his world-society, that he has more than a few negative influences in environment to attack, and that it is time for the abandonment of selfishness and war, purely for their own sakes.—J. M. Moore.

MONKEYS

MAN springs from Apes! Our ancestors were monkeys! These and similar startling items written and circulated throughout the United States may have furnished exciting and controversial reading material, but it has retarded the acceptance of certain basic truths in evolution. The now infamous Dayton Monkey Trial, in which evolution was made the butt of many funny but misleading jokes, was the springboard for the raging argument over the theory of evolution and certain religions. Many thousands of words have been written on this trial, and too many paragraphs of scientific works have been lifted bodily from writings, thus giving them new meaning, and allowing them to be twisted and analyzed in any manner.

Many writers capitalize on the fact that most humans think that their own dignity, and the

dignity of man is offended when told that they are related to monkeys. If the authors would go all the way back to the beginning and show how all life in the world started with one cell, it would show how every living thing is related. This does not contradict the Bible, as it was necessary for some infinite Being to start the first living cell, as no one can invent a synthetic living body. All the component parts in exact proportions may be present, but the life itself has to come from somewhere else.

Some writers have dipped into anthropology books and have come out with startling statements such as "Apes are the closest relation to humans." What anthropology actually says is that "Man evolved along the line of monkeys and apes, but man diverged and went its own way." That divergence was over fifty-five million years

ago, so we are not too closely related. Structurally, the difference between man and apes is very slight. The important differences seem to be in that man has become an erect-walking ground-dweller, and that his brain development has continued far beyond the ape stage, in fact, more than double that of the highest anthropoids.

Education has taken much of the curse of the "Monkey to Man" phrase away, but it would certainly help if authors stuck to the facts in the case rather than the sensational angle.—C. Reeves.

DIESEL ENGINES

FOR the many people who have looked at the Diesel engine as the ultimate in rail power, this may come as a shock—oil may soon be an outmoded power unit and in its stead will be, of all things, coal. We may have a little trouble recognizing it, however, as it won't look, act or sound like the old 97. Instead of spewing smoke and cinders over the countryside, it will glide along with the effortlessness of a Diesel, and at less cost too. For years now, men have been trying to make coal perform like oil. Recently, several various railroads and coal companies banded together and raised a million dollar experimental pot, and it looks as if efficient coal will soon be a reality. This experimental committee had its troubles. The old coal engine converted less than eight per cent of the coal's heat units to power; they have to have water; coal burners jerk to a stop and stumble when they start. It seems as if the Diesel was the answer to all of this.

But, the Diesel too has its drawbacks. The main one is that the oil reserves of the world are dwindling and this means that soon the price will go up. As for coal, the world has approximately a three thousand year supply left. The Locomotive Development Committee, as the organization is called, knew all these facts about coal and oil and set out to do something about it. Although not ready to haul trains, the outcome of this work is startling. A working model has been running for several months now. It can burn any type of coal, including that which is usually not burnable. First, the coal is broken to the size of a walnut, then it is atomized to the fineness of confectioners sugar and blown directly into the combustion chamber. There, the superheated power spins the blades of a turbine, which is a close relation of the gas turbine on the jet propelled planes.

Although the coal burning turbine locomotive will only be two-thirds as efficient as Diesels, the coal costs one-third as much as oil, equalizing oil's advantage. The new locomotives have the added advantage of needing no water, this is especially important in dry regions. All of this won't be tomorrow, because the engine, as it stands, is too bulky for use. However, it is steadily being improved, and it won't be too long before coal is again King of the Rails.

—Charles Reeves.

*I'll PROVE I can make
you, too,
**TOUGH as a
MARINE***

*...and add
Powerful POUNDS
and Vital INCHES of
DYNAMIC MUSCLE
to your ARMS, LEGS,
BACK, CHEST,
and SHOULDERS*

Says
George F. Jouett

**WORLD'S GREATEST
BODY BUILDER**

...OR IT WON'T COST YOU A CENT!

Let me prove to YOU that you can put inches of dynamic muscle on your arms, add inches to your chest! Broaden your shoulders and power-pack the rest of your body. I can do for you what I have done for thousands of men all over the world, including many officers and men now in the U. S. and British Armed Forces!

GIVE ME 10 MINUTES A DAY!

I'll Show You My Secrets Of Body Building

"I'll help you learn the Progressive Power Method" through which you can rebuild muscle from physical weakness to the holder of more strength records than any other living athlete or teacher! No matter how skinny or weak you are now, you can build up your physique in your own home, through my proved secrets I show you how to develop your power, inside and outside, without TOUGHING UP, without sweating, without the man you want to be. "The Jouett System," says R. F. Kelly, Physical Director of the YMCA, Atlantic City, "is the greatest system in the world!"

If you want a physique that will inspire respect from men, and admiration from women . . . ACT LIKE A MAN! Decide at once. The famous book, "Nerves of Steel—Muscles Like Iron" will introduce you to the most fascinating full of photos of marvelous power-bodied men who will show you what Jouett has done for them and how he can do the same for you. Reach out . . . Grab this Special Offer today!

PROVE TO YOURSELF IN ONE NIGHT!

Send only 25¢ for test. Complete "Molding" book and send it the evening it arrives. Learn from the exciting thrill you can give your muscles!

**SEND FOR THESE FIVE FAMOUS
COURSES IN BOOK FORM**
ONLY 25¢ EACH
or ALL 5 for \$1.00

BOOK WITH PHOTOS OF FAMOUS STRONG MEN

MAIL COUPON NOW

FREE

Jouett Institute of Physical
Culture
230 Fifth Avenue
Dept. 2D-72
New York 1, N. Y.

*This
Book
free!*



George F.
Jouett
Champion of
Champions

Jouett Institute of Physical Culture
230 Fifth Avenue, Dept. 2D-72, New York 1, N. Y.
Send me the five courses in book form. Enclose 25¢
by return mail. Prepare the courses checked below, for
which I enclose (\$1). Include FREE book of PHOTOS.

- All 5 courses for . . . \$1 Molding Mighty Legs 25¢
 Molding a Mighty Arm 25¢ Molding a Mighty Grip 25¢
 Moldings a Mighty Back 25¢ Molding a Mighty Chest 25¢
 Send all 5 C.O.D. (\$1 plus postage.) No orders less
than \$1 sent C.O.D.

NAME _____ AFN _____

(Please print plainly. Include Zone Number.)

ADDRESS _____

DISCUSSIONS



AMAZING STORIES will publish in each issue a selection of letters from readers. Everybody is welcome to contribute. Bouquets and brickbats will have an equal chance. Inter-reader correspondence and controversy will be encouraged through this department. Get in with the gang and have your say.

ANSWER FROM KOSSUTH

Sirs:

Many people have written me letters asking me if I am on the level concerning my letter published in January AMAZING STORIES.

I wish to say this to anyone interested: I am on the level. I actually can talk to the dero and tero. I call them this because that is what they claim to be. They agree with the Shaver stories. I am rather confused myself.

The most unusual letter I received so far is one from a person claiming to be a dero. I think it's a joke myself.

Norman S. Kossuth,
86 Cedarhurst,
Detroit 3, Michigan.

Thanks, Norman. That ought to answer those who have questioned you. For the information of those who wonder what this is all about: Norman, largely by the use of what is known as automatic writing (that is, he just allows his arm to be moved by an unknown force, to guide his pencil across the paper) has received messages from persons who claim to be the dero and tero. He also says that he has been treated to painful jolts from some mysterious source, ala Shaver, and that he has been shown devices supposed to exist in the caves, such as a rollat, a device to communicate with other planets, etc., etc. We asked Mr. Kossuth to ask his dero, Steve, a few questions, which he did. The dero answered, and we have the original writings of these answers, which are very obviously authentic examples of automatic writing. The answers agree in every instance with Mr. Shaver's picture of the caves. We do not believe Mr. Kossuth to be anything but sincere and honest, and we do not blame him for being confused. We do want to warn him, however, to be wary, and to maintain his mastery of the situation. That is, do not allow the dero (or whatever it may be) to run the show. The writing is okay, but don't let it go any further. As to your letter from a dero, it is certainly a hoax. No doubt from one of the fans who think it is funny to write fake letters to your editor. It has all the earmarks of a phoney. Disregard it.—Ed.

TSK, TSK, MR. WILLIAMS!

Sirs:

Just received Dec. AMAZING and read F. R.

Williams' letter on "static." I wish to tear down his statements for the readers' benefit should you publish this and I sincerely hope that you will.

Before I go into that I want to say that I have been an ardent AMAZING and Fantastic fan for some time and will continue so. I think possibly that I wrote once before, about four years ago, but it was somewhat silly so I doubt if it got published. Oh well, what's the diff; it's water under the bridge. Now on to the CAUSTIC SODA.

Williams states that, quote "a lightning flash is not of course of direct current nature" unquote. I wonder if he ever studied high school physics? If he has then he should know something of static electricity. He says that if lightning were a direct current discharge there would be no static. How very wrong he is. A DC welding arc causes terrific static in a radio, why? I will attempt to explain. A discharge arc is irregular, in the case of lightning, it is due to the irregularity of the dielectric strength of the air between the clouds and the earth or objects upon the earth; in the case of the DC welding arc no one can hold an arc perfectly steady so that the arc increases and decreases in length, in both cases a pulsating electro-static field which induces in the air an oscillatory WAVE that will follow a sine pattern. Do you see now, Mr. Williams?

Another statement of his which is incorrect is his statement, quote "only an alternating current can induce an electric current in a wire," unquote. You readers who have studied physics or radio, does that sound correct? It most certainly isn't. Go back to simple electro-magnetic induction with a battery, a switch, and the primary of an induction coil in series. Open and close the switch rapidly, connect a meter across the secondary and you will find that a current has been induced. Here is the principle as I studied it in both physics and radio. Opening and closing the switch causes a pulsating DC current which sets up a pulsating electro-magnetic field inducing an alternating current in the secondary. The automobile coil works on this principle, so does the power supply of an auto receiver.

The same principle is applied in both the above explanations. In the case of lightning an irregular high potential DC discharge, occurring when the dielectric strength of the air is reduced sufficiently to allow the high potential charge to leap the air

gap to the low potential charge, the action setting up a pulsating electro-static field inducing a sine wave voltage in the air. In the case of the induction coil the pulsating DC current in the primary sets up a pulsating electro-magnetic field which induces a sine wave current in the secondary. In the event that Mr. Williams brings up the point that he stated induced current in a WIRE, I suggest that he arrange two wires close together with a pulsating DC current in the one and a meter across the other. He will find that a current is induced however minute. I will concede that there is no DC transformer, there is no particular need for one even if it were possible. For in the case of the output transformer of a radio receiver a pulsating DC current is present to induce the AC signal in the secondary to the speaker. If desired I will explain the methods and principles in another letter, but if Mr. Williams knows as much about radio as he seems to think he does then I should not have to explain.

Mr. Williams, I suggest that you purchase a few radio books for yourself rather than have the editor dig into all the technicalities, also you might go back over your high school physics if you ever had any.

Words of praise for your fine work is all I have for you, Mr. Editor. Occasionally some of the short stories smell wee hit hut on the whole they're okay. But then I'll have more to say on that some time again.

Here's hoping that you'll print this in your DISCUSSIONS for Mr. Williams' and the readers' benefit.

Harold C. Bates,
R.F.D. No. 1,
Shippensburg, Penna.

Thank you, Mr. Bates, for coming to our technical rescue. It would seem that our apology was not necessary and that Mr. Williams' criticism of our science was unfounded. We suspect that many of the things that we are taken to task for are really provable had we the time to look up the actual reference.—Ed.

REPORT ON A CAVE

The writer is presently a reporter for the Washington Times Herald, is a former World War II combat infantry officer and a holder of the Distinguished Service Cross.

I can be checked upon at my paper or better, simply contacted there by your Washington office. I vouch for the following and will be glad to be of assistance for the hell and not the cash of it.

I'll tell you a story *about a story* about a cave and if you want to kick it around, I, as I say, will do all I can to help, although at this writing I intend to furnish you with the names of persons more closely involved and you won't need me. In fact, for the time, I'd feel better if you just BURNED this letter.

In 1935 these weary eyes gazed awe-stricken upon a blue print of a California cave prepared

30 LESSONS IN
PSYCHOLOGY
• PSYCHOANALYSIS
• PERSONALITY
• POWER
• PERSUASION

You are the one best suited to analyze, understand, and improve your personality.

A complete course in:
 • Balanced personality
 • Making friends
 • Sex attraction
 • Understanding people
 • Mental ability
 • Influencing others

SEND IN COUPON TODAY

G. KASTEN, 509 5th AVE., NEW YORK 17, N.Y.
I am over 21. Enclosed please find \$3.00 for course.

PLEASE PRINT.

NAME: _____

STREET: _____

CITY: _____

STATE: _____

CUT OUT THIS BAND TO FIND RING SIZE
SADDLE RING
 AUTHENTIC WESTERN
 FOR MEN!
 & WOMEN!
 PURE
 STERLING
 SILVER
 Only
 \$4.95
 Postpaid
 We Pay Tax

First time at anywhere near this low price! Authentic replica of romantic western saddle. Hand-somely formed from solid Sterling Silver by Navajo Indian craftsmen. Massive style for men, dainty style for women. A gift of distinction. A pleasure to wear. Sent on approval.

SEND NO MONEY! Just clip this ad with your name and address. Pay postman only \$4.95 plus few cents postage on arrival; or send cash and we pay postage. Wear this sensational ring for 10 days. If not delighted, return for full refund. Order Now! Use COUPON BELOW!

10 DAY TRIAL ORDER COUPON

ARIZONA CRAFTSMEN ROOM 615A
1904 FARHAM ST., OMAHA 2, NEBRASKA

SEND Sterling Saddle Ring as I have indicated below.

C.O.D. Cash Enclosed, Send Postpaid

NAME: _____

ADDRESS: _____

CITY: _____

Men's

Women's

STATE: _____

Ring Size: _____

MEN Build a Wholesale Route GET INTO A Big Pay Business

We Help You Establish a Steady Route of Dealer Customers

Make good weekly earnings selling stores our BIG line of 200 products—all daily necessities. Show merchants in your locality a sensational line of self-selling counter goods. Retail at 5¢ and 10¢. You make up to 112% commission! No large capital required. Easy to Start! A fortune spent for National Advertising has made our products known from coast to coast. Send for our booklet "Your Opportunity in a Wholesale Business of Your Own." It's FREE—no obligation. WRITE TODAY!

WORLD'S PRODUCTS CO., Dept. H-28, 1, Sparta, Ind.



High School Course at Home Many Finish in 2 Years

Go as rapidly as your time and abilities permit. Course equivalent to resident school work—prepares for college entrance exams. Standard H. S. texts amplified. Diploma, high school subjects already completed. Single subjects if desired. Books, papers, money, every help you need in business and industry and socially. Don't be handicapped all your life. Be a High School graduate. Start your training now. Free catalog on request. No obligation.

American School, Dept. H-282, Dresden 38th, Chicago 37

INVENTORS

HAVE PATENT PROTECTION first. Remember, the details of your invention do not have to be published before you can obtain a patent. Patent laws favor the inventors who act promptly. First step is to have us conduct a search of the prior U. S. Patents and render a report as to your invention's patentability. Send at once for further particulars on how to protect your invention. Request does not obligate you.

McMORROW, BERMAN & DAVIDSON

Registered Patent Attorneys

166-B Victor Building Washington 1, D. C.

In his off-time by a member of the U. S. Geodetic Survey.

This cave was approximately the size of the Grand Canyon.

As I said, this is a story about a story.

The story, telling all that was known to the writer at the time, was written, with some slight assistance from me, by Lowell E. Harmer, at present a reporter for the Los Angeles Daily News—he a man with an overweening interest in caves.

The story was BOUGHT by Esquire Magazine, but WAS NEVER PRINTED.

I sure as hell would like to know why Esquire paid good money for a story and never used it and WHAT WAS BEHIND IT? The story was read and critiqued by Arnold Gingrich himself. This I know, because it came back in its first draft with suggestions for changes by Gingrich and was purchased in its second draft and Harmer was paid. I think the price for the article was \$175.00, but I could be wrong—if it's important.

Substantially, the story was this—

Several years before 1935 three Indian youths appeared in Needles carrying the mangled body of a fourth—their brother, or brother tribesman. Time dims the memory.

It developed that they had been mining a vast underground cavern, complete with series of ter-

races, and that the dead youth had slipped and fallen from the lowest of the series, falling EIGHT HUNDRED FEET to his death.

The boys said they had been depositing their gold in the bank at Needles. This was investigated and found to be true. I believe they had deposited about \$55,000 worth.

The cavern was reached on the property of the Dorr brothers in San Bernardino county and roughly was under the Ivanpah mountains. See map.

Fearing a gold rush, the Dorr brothers made arrangements to keep others out, conducted an underground exploration that took 8 days, failed to complete exploration of the main vast cavern.

When they emerged they found the danger of a gold rush even worse, dynamited the entrance and spent several years and all their money perfecting title to their land and buying up all the desert lands they adjudged to lie above their projected underground domain.

As of 1935 they were unable to find their way through the tortuous and branching underground tunnels back to the main cavern.

This main cavern, blue printed by the U. S. Geodetic agent, whose name I cannot remember, was tremendous.

There were 1500-foot waterfalls that washed down into it, gradually filled it to a depth of many feet, then suddenly rushed out in a direction away from the falls. Siphonage, apparently.

This washing, continuous for God knows how many millenniums, was what was mining the gold down in the bottoms of the cavern, if memory serves.

There was a stalactite hanging from somewhere that was 100 feet through at its ceiling base, and extended downward FIFTEEN HUNDRED FEET.

There were many other unbelievable features. It was nothing less than the Grand Canyon of the Colorado repeated underground.

A certain Sparks Stringer apparently was working with the Dorr brothers to raise funds for further attempts to re-enter.

One Ed Muhl, then an executive and now business manager at Universal studios, was approached by Stringer and one William H. Burk, or Burke, (who will be in the Los Angeles city directory) with the proposition that Universal put up the money for reopening, in return for photo rights.

This was favorably considered for a time then turned down on the grounds that it was prevented by technical difficulties. These were, I believe, sufficient power for illumination, etc.

The Southern California Automobile Club, or I believe, one of its officers, was interested, somehow. It may have been because of its promise as a tourist attraction, but there was a mystery about his interest. It did not seem legitimate to us at the time, as I remember. That was Harmer's opinion, is what I mean to say.

You can have a Washington, D. C., representa-

tive contact me at the Times-Herald, or at my home, 5605 33rd St. N. W., Washington, D. C. My phone number is ORDway 3374.

However, Harmer is your man. Or should I say Shaver's man? He was still at the Los Angeles Daily News last May and I'm pretty sure he is still a reporter there.

He's a man with an open mind and will not allow himself to be conquered either by Charles Fott or Albert Einstein.

Incidentally he knows about another cavern operated near the Dorz brothers' place. The manager (or owner, I forget) is a man named Hansen. Hansen is a man afraid of his cave. He doesn't go in it himself. He hires people to guide others into it. Harmer, in 1935, didn't find out why he wouldn't go in. He just seemed to be a man afraid.

Charles H. Gesner,
Times-Herald,
Washington, D. C.

Here's a cave that sounds interesting. We wonder why more isn't known about it. Why do its owners act so mysterious? Any of our readers know about this, or perhaps the Speleologists? We'd welcome any news about it that might serve to clear up its mystery, even if it is only of a debunking nature.—Ed.

RELIGION

Sirs:

In your January issue, the story "I Have Been In The Caves" the writer gives a distorted story of Christ. Why must you drag religion into your magazine? As you should know, there is God the Father, God the Son, and God the Holy Ghost, all of them is but one God. This is called the Holy Trinity. In other words, when you deny Christ for what He is, you are denying God's existence and that is sacrilege. I enjoy your magazine very much, but please don't publish lies that would make any decent Christian feel sorry for your magazine.

Roy C. Brown,
4501 Navarre Road, S. W.,
Canton, Ohio.

If you were to accept Mrs. Rogers' cave story as true, might it not be true also that the cave people have a "distorted" story of Christ? Actually, these stories (including Mr. Shaver's) are very reverent, and we do have one about Christ, which we will not publish in AMAZING STORIES, because regrettably, too many people would be angry if the subject matter did not agree with their own beliefs. The Trinity is not only Christian, but Buddhist, Mohammedan, Brahmin, etc. It is also the basis for much philosophy, as three aspects of the Universe. Certainly, we do not deny Christ—in fact we occasionally run true articles on the discovery of some new manuscript in an ancient tomb, which proves the existence of Christ

DISCUSSIONS

DRAW for MONEY

BE AN ARTIST!

Trained Artists Are Capable of Earning \$50 - \$60 - \$75 A WEEK
Use Your Spare Time to Prepare for a Profitable Art Career!

It's pleasant and interesting to study Art. The W. S. A. was COMMERCIAL ART, DESIGNING and CARTOONING—all in ONE CLASS. You can learn to draw and paint. No Art experience necessary—we teach you step by step—hundreds have profited by our FINISHED Colorful FREE BOOK, "Art for Pleasure & Profit"—tell us about our course, studies with our artists, and the many commercial opportunities for you in Art.

FREE BOOK gives details!

WASHINGTON SCHOOL OF ART

Studio 623-N, 1118 18th St., N.W., Wash. 2, D.C.

Send your free book and full particulars.

Name AGES

Street

City, Zone (.....) State

What To Do for Pains of

ARTHRITIS

Try This Free

If you have never used "Rosse Tabs" for pains of arthritis, neuritis, rheumatism, we want you to try them at our risk. We will send you a full-size package from which you are to use 24 Tabs **FREE**. If not astonished at the palliative relief which you enjoy from your sufferings, return the package and you owe us nothing. WE mean it: SEND NO MONEY. Just send name and address and we will rush your Tabs by return mail.

ROSSE PRODUCTS CO.
Dept. 732, 2709 Farwell Ave., Chicago 45, Ill.

POCKET ADDING MACHINE

Sturdy steel construction for lifetime use. Adds, subtracts, aids multiplication. Capacity 999-999.9. A real machine—guaranteed 6 years. Thousands in use now. Send name and address. We ship immediately. On payment, pay postman \$2.50 (plus C.O.D. and postage charges). If you send \$2.50 with order, we pay postage. Leatherette case \$5.00 additional. Our money back after 10 days' trial if not satisfied.

TAVELLA SALES CO., 25-CTB West Broadway, N. Y. 7, N. Y.

ECZEMA

Dry Eczema, Surface Pimples, Scaly Skin externally caused. Relieve the stinging itch—alleviate irritation—and thus quicken healing with fast acting LUMCO No. 4. Used 10 days—if you say LUMCO No. 4 has not helped you 100% money will be gladly returned. Backed by over 30 years success. 4-oz. economy size jar \$2 D-paid or C.O.D. plus postage.

Address **LUMCO PRODUCTS, Dept. LUMCO**
601, Kimball, Nebr.



LEARN MAGIC?

KIT OF TRICKS AND JOKES \$1.00

Vanishing Key Box Magic Pkg. 25¢

This kit may start you on the road as a magician. Free catalog for stamp. Multiplying Rabbit \$1.00. Will Lindhorst, Magic Den, 612 S. Pine, St. Louis 1, Mo.

WAS DEAFened NOW HEARS CLOCK TICK

A. M. Beckchen, Newark, N. J., writes:
"Before being Great Uncle Drew," he declared that I could
not hear the clock tick. After being Great Uncle Drew, I can now hear the
clock tick with both ears." Thousands now hard-of-hearing would
hear clearly and distinctly again, and also get relief from buzzing,
ringing head noises, clogged ear feeling in ears. If impacted wax
was the cause, it was removed. The wax was removed. They were removed.
Ear drums were removed. Ear drums were removed. They were removed.
They were removed. They were removed. They were removed. They were removed.
SEND NO MONEY. Pay postman \$2 plus postage and
C. O. D. charges. If you enclose \$2 with order, we pay all post
age. MARVIN CO., 117 West 48th St., Dept. 840, New York 18, N. Y.



STUDY AT HOME for Personal Success and
LARGE EARNINGS. 35 years expert instruc-
tion—over 100,000 students enrolled. LL.B.
Degree awarded. All text material furnished.
Easy payment plan. Send for FREE BOOK—
Law and Executive Guidance—NOW

AMERICAN EXTENSION SCHOOL OF LAW
Dept. 75-R 646 N. Michigan Ave. Chicago II, Ill.

ILLUSTRATED COMIC BOOKLETS

THE KIND MEN LIKE! (VEST POCKET SIZE)

They are loaded with rare car-
toons. Full of Fun and Humor.
20 DIFFERENT booklets sent
prepared for \$1 in plain wrapper.

GRAYKO, Dept. AB-952
Box 520, G. P. O., New York 1



Ammunition
Shotgun Shells
Rifle Ammunition
Revolver
Ammunition
New Shotguns
New Rifles



Send \$5 for Handy Home Workshop
Guns Catalogue and Latest
Ridgway Block Ridgway Pennsylvania



Ammunition
New Shotguns
New Rifles

Send \$5 for Handy Home Workshop
Guns Catalogue and Latest
Ridgway Block Ridgway Pennsylvania

Ammunition
New Shotguns
New Rifles

dust swirling around close to one of the walls. As I watched, this dust materialized and took the form of a man about five feet high. He appeared to be about twenty years old and spoke with a low, mellow voice.

I had been expecting something of this sort after reading your letter and was not too surprised to prevent myself from getting out of there fast.

He spoke English very well but seemed to have quite some difficulty in talking slow enough for me to understand him.

He spoke for several minutes and as near as I could tell, his conversation went something like this:

"The angle is zero, I am safe at zero, but the machine is broken and soon we'll be ninety and I'll have to go. Infinity . . . ninety and I won't come back because they will . . . but in a year . . . if their research goes well we'll have ninety and zero whenever they want it, but now we follow the earth. Be sure to wait and give the . . . four to forty-five, but then all is too . . . when I will try to contact you . . . zero. Be sure to . . . wait . . . and then we will talk again and I will tell you all about the machine and that which puzzles you. You have the secret, but I am learning about the . . . infinity from zero and two-seventy and three-eighty. I am their prisoner and must return before they discover I am gone."

He disappeared without giving me a chance to question him and I made no more discoveries.

I hope to be able to visit the cave again in the near future and will try to get some pictures.

I would appreciate it if you could throw any light on this subject and also let me know immediately if you want to keep in contact with me.

Very few people believe any of this that I have told you and I'm beginning to think that maybe I should drop the whole thing and seal up the cave. What do you think I should do?

James E. Wright,
3209 Robin Road,
Louisville, Kentucky

Mr. Shaver forwarded this letter to us. Apparently the author has been in a cave where things exist which would prove the Shaver Mystery. Thus, we ask that any volunteers of the Cave Hunters Mutual Benefit Society, or any of our readers in Louisville, call on Mr. Wright, get exact location of this cave, and visit it. We also ask the Speleological Society for information, and we refer Mr. Wright to them for possible exploration of a new cave. Your editor is naturally suspicious of this letter, but we do not overlook any possibility. This is one for the CHMBS. Go to it, boys. If Mr. Wright has something, don't let it get away from us. If he hasn't, let's find out whether his statements are true, and if not, correct them in these pages.—Ed.

RE THE "MYSTERIOUS" SHAVER

Sirs:

Quote: "Exd (an abbreviation for ex-disinte-

Do You Want Power?



Power to make men victorious in all you undertake? Power to make people admire you? Power to earn money? Power to gain popularity—love? Power to make anyone fear you? I will send you information which is the result of scientific research. This information and directions will help you become more masterful and exert greater influence over others. It is to prevent misconceptions. **IF YOU ARE NOT DAZZLED BY THIS INFORMATION, IMMEDIATELY REFUNDED.** Just send me your name and address. Pay postage on delivery \$2.10 when he delivers goods and written guarantee, or enclose \$3.00 cash or money order and I will pay postage. Write now!

FREE on every order: Talismanic Seal of Luck in blood-red ink or Egyptian mottled Parchment. HARRIS, 220 Broadway, Dept. DP-27, New York 7, N. Y.

JOBs NOT BOMBS for AMERICANS



WORK FOR "UNCLE SAM"

START

\$1756 to \$3021 Year

Men—Women

Prepare Now for 1947
Examinations.
Work and Get
Special Pre-
frees.
Mail Coupon
Today

FRANKLIN INSTITUTE
Dept. 105, Rochester 4, N. Y.
Send book with list of many U. S. Government
Big Pay Jobs. (2) Tell me how to
prepare for one of these jobs.
Name _____
Address _____
V-67

CONFIDENTIAL LOAN SERVICE

Borrow \$50 to \$300

Need money? No matter where
you live you can borrow BY
MAIL \$50.00 to \$300.00 this
easy quick confidential way.

BY MAIL

IT IS EASY TO
BORROW
BY MAIL!
Completely con-
fidential and
private.
Convenient monthly
payments.

NO ENDORSERS NEEDED
EMPLOYED MEN and women of good
character can solve their money prob-
lems quickly and in privacy with loans
MADE BY MAIL. No endorsers or co-
signers. We do not contact employers,
friends or relatives. Convenient mon-
thly payments. Send us your name and
address and we will mail application
blank and complete details FREE in
plain envelope. There is no obligation.

STATE FINANCE CO.
303 Marine Bldg., Dept. Q-84, New Orleans 12, La.

MEN, WOMEN OVER 40

Are you going through life feeling tired, miserable, distressed due to improper assimilation? When your system becomes clogged, you feel weary, older. You lack ambition. Your organs of elimination don't function as Nature intended. Use SPARK SEEDS to aid your system to function properly. Help to GET RID OF THE DISTRESS THAT PREVENTS YOU FROM ENJOYING A MORE NATURAL AND HEALTHIER LIFE. Life will take additional pleasure for you. SPARK SEEDS & Nature's own product. Send only \$3 cash, money order or check and we pay all charges. (If C. O. D., \$5.50). WE GUARANTEE you must be satisfied or purchase price refunded. Order SPARK SEEDS today.

SPARK SEEDS CO., Dept. DP-27
220 Broadway **New York 7, N. Y.**

ASTHMADOR

Bitter winds... snow, slush... stuffy, overheated houses... no wonder winter usually spells a-g-o-o-d-y for the asthmatic who has not yet tried Dr. R. Schiffmann's ASTHMADOR! Take pity on the poor sufferer... tell him how ASTHMADOR's rich, aromatic fumes cut right through congestion, let in life-giving air, help reduce the severity of the attack. Tell him to ignite ASTHMADOR powder when he's too stupefied to sleep, or smoke an ASTHMADOR cigarette anytime, anywhere. No costly sprays to buy — nothing to take internally — just welcome relief the time-tested ASTHMADOR way. The leading inhalant — sold under a money-back guarantee.



CLASSIFIED ADVERTISING

Song Poems

POEMS wanted for musical setting. Send poem for immediate consideration and Free Rhyming Dictionary. Richard Brothers, 98 Woods Building, Chicago, Ill.

POEMS Wanted. Free examination. Send poems to J. Chas. McNeil, Master of Music, 510 ZB South Alexandria Ave., Los Angeles 5, Calif.

SONGWRITERS: Songs published monthly. Advance royalty. Send your songs or poems today for our exciting offer. Hollywood Tunemakers, Dept. EB-2, 1537 N. Vine St., Hollywood 28, Calif.

SONGWRITERS—Lyricists—Poets. This is your chance! Send us your name and address. Banner Music Publishers, Box 248, Grand Central Annex, New York 17, N. Y.

Miscellaneous

MAGAZINES (back dated)—foreign, domestic, arts, Books, booklets, subscriptions, pin-ups, etc. Catalog 10c (refunded). Closer's Center, 863 First Ave., New York 17, N. Y.

CAMERAS. Photo Supplies. Movie Equipment. 8-16mm. Weekly film rentals. Catalogue. Dayton Film, 2227 Hepburn, Dayton, Ohio.

PIMPLES. Acne disappear. Clear your complexion. Write today. Immediately. Healthmaster (Dept. 10), 1441 Prospect Place, Brooklyn, New York.

RESPONDENCE Courses and self-instruction books slightly used. Sold. Rented. Exchanged. All subjects. Satisfaction guaranteed. Cash paid for used courses. Complete information and 100-page illustrated bargain catalog. Free! Write Nelson Co., Dept. 56, Chicago 5, Ill.

BORROW by Mail! Loans \$50.00 to \$1,000.00 to employed men and women. Apply quick. Completely private, confidential. No endorsements. Repay in convenient monthly payments. Details Free in plain envelope. Write First Loan Co., World Herald Bldg., Dept. F-58, Omaha, Nebr.

SCIENTIFICATION, weird, fantastic; books, magazines. Werewolf Bookshop, 612A Maryland, Pittsburgh 6, Pa.

BOOKS! Books! Your favorite authors of Science-Fiction, Fantasy, Mystery, and Adventure are no further away than your mail box! Write for Free list of new and old titles. Some titles are limited in quantity. Bargain Buys regularly! Our special Buy service from "Your Books Are by Mail" will appeal to you. Over 13 years in business at this address. Start sending in our list now and be eligible for our Bargain Buys as we stock them. Write Now To: Chancy's Book Service, 112 W. San Fernando Street, San Jose 21, California.

grance) is the condensation back into form of matter which has been disintegrated (suns are constantly disintegrating), and this in-flow of condensing matter is what causes gravity, which is a push, and not a pull as the modern Scientist says." Unquote, per your Editor's article in AMAZING STORIES concerning Mr. Shaver's explanation of gravity.

Now if "Exd" fills all space as a mist, and in the proximity of matter condenses and falls toward that matter, what would cause it to fall? The mere use of the word fall belies the sincerity of the explanation. Why should the mist fall if there were not something else to attract it? If there were such a mist, and the real unexplained gravity were acting upon it, it possibly would aid in keeping everything forced in the direction we call "down."

It is also, in this case, logical to assume that at higher altitudes, where the concentration of this mist is not so great, that gravity would be less, as it would fall towards the earth it would flow through all matter, pushing, as he says, everything down. An example would be a river, also aided and abetted by gravity, carrying or pushing against anything which opposes its flow.

In making and explaining these assumptions, we must have a more or less general pattern to follow, as this "Exd" is pushed toward matter, would it not act in the direction of immediate mass, such as a mountain? As the so-called condensed mist flows toward that matter, it would seem that a person would have to stand perpendicular to the plane of this mass; otherwise his body would be pushed into a position against, and parallel to, the plane of the mass.

Shaver says that this mist falls toward matter. I have not taken this literally, and I've assumed that he means that it continues through matter itself to a common core.

As gravity is always acting "down" this mist would have to have a point of convergence, presumably at the center of the earth. This continued absorption of "Exd" through countless years would cause three things.

First: It would build up a tremendous, incalculable pressure inside the earth, causing the complete disruption of this astronomically insignificant globe.

Second: It would build up to a point of saturation, when the earth could not possibly absorb any more matter, and there would be "Exd" on the surface of the earth, inexorably and indiscriminately liquidating life as we know it.

Third: It would reach the afore-mentioned point of saturation and start a surface reflection proportionate to the amount of "Exd" being assimilated. This would cause flows of "Exd" in opposite directions, canceling what we call gravity. Need I describe what would happen? I shudder to think of it.

Applying Shaver's assumption to our own family of planets, it would be as foolish to assume that each and every planet would have the

same rate of absorption of "Exd," as it would to claim that each absorbed the same amount of light or heat, or cosmic rays, therefore, as these planets absorbed "Exd," a constantly changing ratio of masses and attractions between these planets and the Sun would be effected, causing our Solar System to collapse, or be pushed in upon itself; after fusion, there would be a Sun only, and "Exd" would commence to be "Ex-Exd," as the Sun disintegrated. (Q.E.D.?)

Charles E. Barry,
6 Mill St.,
Nashua, N. Hampshire

Our trouble here lies in the meanings of words. We used the word "fall," maybe we should have picked "descend," or "approach." But, for your benefit, we'll try to explain it even better. The whole of space being filled with this mist, to what you might call a balance point, or saturation point, is like salt in a solution—put an extra grain of salt in the solution, and "condensation" results, and the salt precipitates itself out of solution; and if the solution were being stirred as this happened, the salt would collect at the center of the little whirlpool. It would "fall" toward the center, if you will pardon our misuse of the word again. The mist in space is the same. The Earth (any body) acts exactly like the extra grain of salt, and a "precipitation" out of solution begins. Since the Earth (and the vortex surrounding it) is rotating, the condensing matter collects at the center, or, as we used the word, "falls" to Earth. Got it clear now? This material, condensing, and being driven by rotative forces toward the center, causes that "push" we call gravity. It follows that the Earth is constantly growing, and in a million years, might increase its diameter an inch or two.

In the case of mountains, aren't you mentally magnifying the size of mountains? In relation to the Earth itself, the surface of the Earth is as smooth as a billiard ball. Try to find perpendicular surfaces on that!

Your theory of the increasing pressure at the center of the Earth is interesting. Maybe that does explain why huge bodies explode and become Novae. Maybe you've hit on the answer astronomers and physicists have been seeking. Maybe Shaver does make sense, eh? Logical scientific sense!

As for what keeps the Solar System apart, we believe it is simply a matter of each planet being held in place by its particular "vortex" and all being held in their orbits by the master vortex of the sun, which is exactly counterbalanced by the individual vortex of the planets. Certainly it isn't gravity, or attraction of mass, or any such thing that holds them apart! And it doesn't seem to us to be their speed of rotation, either. Some of them rotate so slowly. Nor is it orbital speed. Their orbital speed is determined by their POSITION in the master vortex. And like a gyroscope, their own vortex keeps them where they are. It's all so simple.—Ed.

WRIST WATCHES!

CHARACTERISTIC DESIGN NOW - GENUINE SWISS
WATCHES - ACCURATE TIME KEEPERS - GENUINE
WIND UP CHROME CASES - MADE BY EXPERT SWISS
CRAFTSMEN - EXCLUSIVELY TRADITIONED TO YOU
A BEAUTIFUL GIFT!

SEND NO MONEY! ONLY YOUR NAME,
ADDRESS AND CHOOSE PAY POSTMAN OR MAILER-ONLY
\$10.75 AND NO MORE - ORDER TODAY!

Dear Company: Send me the Watch for \$10.75.
I will pay C. O. D. on delivery.

MAIL ORDERS TO **HOUSE OF DIAMONDS**
RFD 2 876 Falls Street, Brooklyn 1, N. Y.

Is every religion a deterrent against crime? Read this important statistical analysis leading to startling conclusions—This pamphlet has been used as evidence in the Senate Hearings of May, 1945, on the Mead-Alben Bill S-717

RELIGIOUS EDUCATION AND CRIME

By L. H. Lehmann and J. J. Murphy
Only 15¢ per copy
7 Copies for \$1.00
Agora Publishing Co.
Dept. V.S.
120 Liberty Street
New York 6, N. Y.

ILLUSTRATED BOOKLETS

Sell our ILLUSTRATED COMIC BOOKLETS and other NOVELTIES. Each booklet size 4½" x 2¾". Ten different sample booklets sent for 50¢ or 25 assorted for \$1.00 or 100 assorted for \$2.00. Shipped prepaid. Wholesale novelty price list sent with order only. No orders sent C.O.D. Send Cash or Money Order.

REPSAC SALES CO.
1 West 13th St., Dept. 40-C New York 11, N. Y.

WHY WEAR DIAMONDS

Whimsical—dazzling diamonds from the mines of far-away mystic lands are the epitome of luxury and elegance. Fillings, rings, bracelets, brooches, full of FIRE! Exquisite mounting before you buy. Write for FREE catalog.

National Zircon Co., Dept. 36
Wheeling, W. Va.

Catalog
FREE!

INVENTORS — If you consider your invention to be something of importance, you must take steps to protect it with a U. S. Patent which gives you the right to exclude others from making, using and selling the invention as claimed. Detailed information and steps to take to secure Patent Protection will be mailed to you promptly without obligation. Victor J. Evans & Co., Merlin M. Evans, Registered Patent Attorney, 224-B Merlin Blvd., Washington 6, D. C.

PATENT PROTECTION

MAGIC VANISHING CARD

Throw it into the air. It completely disappears. Reproduce it later from spectators pocket. It amuses and confuses all. Easy to do, 25¢ with catalog of 300 Amazing Magic Tricks. The Magician, Dept. 10, 2463 Kensington Ave., Phila. 33, Pa.

ADVICE TO READERS:

who are suffering the miseries of

BAD SKIN

Stop Worrying Now About Pimples and Blackheads

and other externally caused skin troubles

**JUST FOLLOW SKIN DOCTOR'S
SIMPLE DIRECTIONS**



SQUEEZING pimples or blackheads to get rid of them is a nasty, messy business—but that isn't the worst of it. Because doing so may also be injurious and leave your skin with unsightly, embarrassing blemishes. There is, now, a much easier, safer, cleaner way to help you rid your face of ugly, offensive, externally caused skin troubles. You merely follow a doctor's simple directions.

Good-Looking Skin Is Not for Women Only

You—yes, you—can have the same healthy, normal complexion free from externally caused skin troubles simply by giving your skin the special care that handsome screen stars give theirs. There's almost nothing to it—it is just about as easy as washing your face. *The whole secret consists of washing your face in a way that thoroughly cleanses the pores of every last speck of dirt and grime*—something that ordinary cleansing may not do. In fact, examination after examination shows that, usually, it is not a case of "bad skin" so much as a case of incomplete or faulty cleansing. What you should use is a highly concentrated soap like Viderm Skin Cleanser which penetrates the pores and acts as an antiseptic. When followed by a quick application of Viderm Medicated Skin Cream, specks of irritating dirt and grime are quickly washed out; they dissolve and disappear, leaving your skin clean, clear and free of the specks that often bring out pimples, blackheads and other externally-caused skin troubles.

It's Foolish to Take Bad Skin for Granted

It doesn't pay to risk marred skin, blotches, blemishes. Your very success in business, love and social life may depend upon your looks. *Handsome and a good appearance usually start with the condition of your skin.* Nobody likes a skin that looks unhealthy, unclean, abused, and marked with blackheads or pimples. WOMEN ARE ATTRACTED TO MEN WHO HAVE SMOOTH,

CLEAR, ROBUST-LOOKING SKIN. Business executives don't choose men who have a poor-looking complexion. Don't take chances with your success in life when this inexpensive Viderm formula may help you.

Don't murder your skin! Here's all you have to do to keep it smooth and clear. Use Viderm Skin Cleanser when you wash your face. Rub the rich lather of this highly-concentrated soap on your face for just a few seconds and then rinse it off. Then apply a little Viderm Medicated Skin Cream and that's all there is to it. Viderm Medicated Skin Cream quickly disappears, leaving your skin nice and smooth. This simple treatment, used after shaving, helps heal tiny nicks and cuts, relieves razor-burn and smarting, besides conditioning your skin.

DON'T DO THIS!



Don't murder your skin by squeezing it. Skin is delicate. When you break it, you leave yourself wide open to miseries. It's far easier, far safer, to let the Double Viderm treatment help you enjoy a handsome, clear and blemish-free complexion.

Give Your Face This Treat for 7 Days

Stop worrying and being embarrassed over what may happen to your skin. Just send for your Viderm Double Treatment this minute, and be confident that you will keep a smooth and clear complexion. Follow the simple directions, written by a doctor, that you will get with your Viderm Double Treatment; then look in your mirror and listen to your friends admire your smooth, clear skin—the kind that women go for.

Just mail your name and address to The New York Skin Laboratory, 205 Division Street, Dept. 46; New York City 2, New York. By return-mail you will receive both of the Viderm formulas, complete with full directions and packed in a safety-sealed carton. On delivery, pay two dollars plus postage. If you wish, you can save the postage fee by mailing the two dollars with your letter. Then, if you aren't thrilled with results, your money will be cheerfully refunded. Remember that both of the formulas you use have been fully tested and proven, and are reliable for you. If they don't help you, your treatment cost you nothing. After you have received your Viderm, if you have any questions to ask concerning abused skin, just send them in.



Let your HEAD take you

(The average American today has a choice of just going where "his feet take him", or choosing wisely the course to follow. Let's skip ahead 10 years, and take a look at John Jones—and listen to him . . .)

"SOMETIMES I feel so good it almost scares me.

"This house—I wouldn't swap a shingle off its roof for any other house on earth. This little valley, with the pond down in the hollow at the back, is the spot I like best in all the world.

"And they're mine. I own 'em. Nobody can take 'em away from me.

"I've got a little money coming in, regularly. Not much—but enough. And I tell you, when you can go to bed every night with nothing on your mind except the fun you're going to have tomorrow—that's as near Heaven as man gets on this earth!

"It wasn't always so.

"Back in '46—that was right after the war and sometimes the going wasn't too easy—I needed cash. Taxes were tough,

and then Ellen got sick. Like almost everybody else, I was buying Bonds through the Payroll Plan—and I figured on cashing some of them in. But sick as she was, it was Ellen who talked me out of it.

"Don't do it, John!" she said. "Please don't! For the first time in our lives, we're really saving money. It's wonderful to know that every single payday we have *more* money put aside! John, if we can only keep up this saving, think what it can mean! Maybe someday you won't have to work. Maybe we can own a home. And oh, how good it would feel to know that we need never worry about money when we're old!"

"Well, even after she got better, I stayed away from the weekly poker game—quit dropping a little cash at the hot spots now and then—gave up some of the things a man feels he has a right to. We didn't have as much fun for a while but we paid our taxes and the doctor and—we didn't touch the Bonds.

"What's more, we kept right on putting our extra cash into U. S. Savings Bonds. And the pay-off is making the world a pretty swell place today!"

The Treasury Department acknowledges with appreciation
the publication of this advertisement by

ZIFF-DAVIS PUBLISHING COMPANY



POPULAR Protection Plan HELPS PROVIDE

CASH TO PAY BILLS

When Sick or Accidentally Injured
and Unable to Work!



Popular "SERVICE"
GOLD SEAL POLICY
Only \$1 A MONTH!

AGES 15 to 69
NO MEDICAL EXAMINATION

Benefits THAT ARE BIG ENOUGH To Be WORTHWHILE!

IF YOU'RE INJURED accidentally and unable to work, policy provides disability benefits, according to type of accident and injury, for periods up to 24 months, varying in amount from ... \$30 to \$100 ^{per mo.}

IF YOU'RE SICK and unable to work, policy provides disability benefits, according to type of illness, for periods up to 3 months, \$20 to \$100 ^{per mo.}

For ACCIDENTAL DEATH or INJURY policy provides cash benefits in varying amounts, according to type of accident and injury sustained, from ... \$200 to \$4000*

PLUS HOSPITALIZATION PLAN

Hospital Benefits are in addition to disability benefits, subject to terms of policy, and cover both sickness and accident. They include \$5 per day for hospital room for 30 days in any one policy year . . . PLUS up to \$85 for various specified hospital expenses, such as X-Ray, Oxygen Tent, Laboratory fees, Drugs, Dressings and Ambulance. MATER-NITY, limited to \$50.00, effective after policy is in force for 10 months.

These are the "highlights" of the policy.
For full details, write for the policy itself!

THE SERVICE LIFE INSURANCE COMPANY
451-D SERVICE LIFE BUILDING
OMAHA 2, NEBRASKA

Accidents at the rate of 20 per minute! 3 million persons regularly confined by sickness! Someone rushed to the hospital every 3 ticks of the clock! . . . At this rate, no one can afford to be without SICKNESS-ACCIDENT & HOSPITALIZATION Insurance. Here is a popular protection plan, issued by an old-line LEGAL RESERVE company for only \$1-a-month, that provides cash benefits that are big enough to be worthwhile . . . CASH when sick or accidentally injured and unable to work . . . CASH to help replace lost income, to help pay hospital bills, doctors bills, for nurse's care, medicines and other pressing expenses.

POLICY SENT FREE! NO COST!

NO OBLIGATION! . . . Remember, all we can give you here are the highlights of the policy. All are subject to policy provisions. Send for the policy itself. Read it for specific benefits, limitations, exclusions and reduced benefits over age 60. You'll agree this policy offers really substantial protection at minimum cost. Let us send you this policy for 10 DAYS' FREE EXAMINATION. No salesman will call. Just mail coupon below.

FREE 10-DAY INSPECTION COUPON

The SERVICE LIFE INSURANCE CO.
451-D Service Life Bldg., Omaha 2, Nebraska
SEND without cost or obligation your "Gold Seal"
\$1-A-MONTH Policy for 10 Days' Free Inspection.

NAME.....

ADDRESS.....AGE.....

CITY.....STATE.....

BENEFICIARY.....